

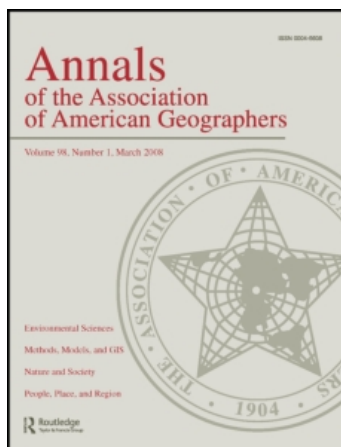
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Publisher Routledge

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Annals of the Association of American Geographers

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t788352614>

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Online Publication Date: 01 December 1939

To cite this Article Hartshorne, Richard(1939)'H. THE CHARACTER OF REGIONAL GEOGRAPHY',Annals of the Association of American Geographers,29:4,436 — 456

To link to this Article: DOI: 10.1080/00045603909357333

URL: <http://dx.doi.org/10.1080/00045603909357333>

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research should be presented, not to geographers, but to the workers in those other fields.

Need it be added that such transfers of point of view may equally well be made in the opposite direction? The student of a systematic science, interested in the geographic aspects of his field, will frequently be able to contribute to the field of geography, and one trusts that in this exchange there need be no grumblings of trespassing on either side.¹⁰⁴

H. THE CHARACTER OF REGIONAL GEOGRAPHY

The development of geography during the past thirty-odd years has been marked by an increasing interest in regional geography. Under the leadership of Vidal in France, of Hettner, Penck, Gradmann, Passarge, and many others in Germany, European geographers gradually shifted away from the concentration on systematic geography, which had been a natural result of the emphasis on universals in all science. Likewise, in this country, the programmatic papers of Barrows and Sauer, however divergent in other respects, agreed in the emphasis on regional studies as the core of geography [208; 211]. Though Pfeifer is correct in noting the similarity of these, the two most influential methodological statements in current American geography, he over-estimates their importance in determining the course of current thought in American geography [109, 96 ff.] by failing to note the major degree to which, like the earlier methodological pronouncements of the presidents of this association, they simply "mirror . . . geographic opinion in America" [94]. As Platt has pointed out, the roots of the current movement, in particular of the tendency for detailed studies of small areas, reach back to geological field courses before the World War and military mapping during the War.¹⁰⁵ It is neither possible nor necessary to determine even approximately what forces or what individuals have been responsible for this development. Mention should certainly be made of the influence that Bowman, as Director of the American Geographical Society, exerted towards intensive regional studies [*cf.* 106]. Possibly most important of all has been the personal influence exerted by the group of Midwestern geographers

¹⁰⁴ It may be admissible to add that a logical corollary of this situation is to be found in the character of membership of this Association. The relatively large number of specialists from other fields, included as geographers, does not represent the normal overlapping along an actual border line between sciences, but rather the fact that geography, by cutting through the systematic sciences, in a sense includes all of them.

¹⁰⁵ In a paper read before the association at the recent meetings, 1938. Specifically Platt notes that the first publication cited by Pfeifer as containing "proposals made by Sauer" [footnote 12] has as its senior author, not Sauer, but Wellington Jones: W. D. Jones and C. O. Sauer: "Outlines for Field Work in Geography," *BULL. AM. GEOGR. SOC.*, 47 (1915), 520-5.

whose annual field conferences, in the years 1923 and following, concentrated the attention of a much larger number of workers on the problems of regional mapping [note, for example, the report of the joint conclusions of this group (see the bibliography for its members), which Jones and Finch published in 1925, 281, as well as the significant studies listed as 282-290, incl.].

If geography, in America as well as in Europe, may be said to have returned, in a certain sense, to the point of view that was common with Humboldt and Ritter (see Sec. II D), its long period of concentration on systematic studies has enabled it to return far better equipped with generic concepts and principles with which to interpret the findings of regional geography—though unfortunately this equipment is relatively deficient in respect to human or cultural features, both in geographic literature and in the training of most of its students.

Many geographers who have accepted this shift in emphasis evidently have done so under the provisional assumption that regional geography is to be made as “scientific” as systematic geography has been, that somehow it must be raised to the plane on which scientific principles may be constructed. We have noted a number of difficulties into which this ambition has led. In our final consideration of regional geography it is necessary to understand clearly certain limitations imposed upon the student that are not found in systematic geography.

After a number of unsuccessful attempts to express the special nature of regional study in words, I find it can be most clearly presented if we may use mathematical symbols, though we shall not, of course, find it possible to express such complicated problems in any real mathematical formulae or equations.

Any particular geographic feature, z , varying throughout a region, might theoretically be represented as a function, $f(x, y)$, x and y representing coordinates of location. As a function of two variables, any such feature that we are able to measure mathematically—such as slope, rainfall, or crop yield—can be represented concretely by an irregular surface. Such a surface would then present the actual character of that feature for the whole region; it would, theoretically, be correct for every point, and for every small district. Furthermore, if the function involved were not too complicated, the theory of integral calculus would permit us to integrate the total of that feature for any limited section, as well as for any individual point. In a sense, part of our work in systematic geography corresponds to this form of presentation.

Likewise, the relation of any two or three geographic factors to each other

within a region—*e.g.*, the relation of crop yield to rainfall and humus content of soil—might be represented as a functional equation involving that many variables: $z_3 = f'(z_1, z_2)$. The concrete representation of this relation would require again a surface form. More commonly, in systematic geography, we consider only the relation of one factor to but one other, which we may then represent as a curve on a plane surface. Each of these factors, z , is of course a different function, $f(x, y)$, and the more complex equation, $z_3 = f'(z_1, z_2)$ holds true only if z_3 is unaffected by other z factors, or if those which affect it are constant throughout the region under consideration. Neither of these conditions is strictly true: almost any geographic element we may consider is affected by more than two of the natural elements, and may also be affected by incommensurable, or quite unknown, human factors; and all of the factors considered vary to some extent no matter how small the area considered. Consequently, we have introduced a degree of distortion of reality even at this step in systematic geography.

We may introduce a further step by establishing element-complexes, u , each representing functions of many z elements, varying, by more or less regular rules, with the variations in a smaller number of those elements. Thus, given certain conditions of soil, slope, temperature, and rainfall we may presume within a wide margin of both inaccuracy and uncertainty, certain conditions of natural vegetation and wild animal life, and we may express the total of all these z elements by one u element-complex. If it were conceivable that we could express this feature, u , arithmetically, its character over an area would likewise form an irregular surface that would indicate its character for any limited part. From the nature of these element-complexes, however, it is obvious that any such representation would have a high degree of unreliability.

In regional geography, however, we are concerned with a vastly more complicated function of the location co-ordinates. It cannot be expressed as the function of any one element or element-complex, but rather of various semi-independent element-complexes, u , and of additional semi-independent elements, z' . Thus, the total geography, w , at any point, might be expressed by the function, $F(u_1, u_2 \cdots u_n, z'_1, z'_2 \cdots z'_n)$. If we could have accurate and complete information concerning the form of the function, F , and every one of the element-complexes, u —each as a function of various z elements—and of the semi-independent elements z' , the function would be so complicated that we could not hope to represent it by any concrete form, even in terms of n -dimensional space. We would have a function that could be solved only for each point, x, y , in the region, but could not be correctly expressed for any small part larger than a point. In other words,

we could study the geography of the area only from the study of the geography of the infinite number of points within it. This task, being infinite, is impossible. The problem of regional geography, as distinct from a geography of points, is how to study and present the geography of finite areas, within each of which the total complex function involved depends on so many complex functions, complexly interrelated, as to permit of no solution by any theory of integration.

Consequently we are forced to consider, not the infinite number of points at each of which w is in some degree different, but a finite number of small, but finite, areal divisions of the region, within each of which we must assume that all the factors are constant. In order, then, to cover an entire region we will need but a finite number of resultants, w , each representing the geography of a small unit of area rather than of a point. This method is legitimate only if one remembers that it inevitably distorts reality. The distortion can be diminished by taking ever smaller unit areas, but it cannot be eliminated entirely; no matter how small the unit, we know that the factors which we assume to be constant within it are in fact variable. In practice, the smallest units that we can commonly take time to consider are sufficiently large to permit of a marked degree of variation, and therefore of a significant distortion of reality in our results.

To express our conclusion in more common terms, in any finite area, however small, the geographer is faced with an interrelated complex of factors, including many semi-independent factors, all of which vary from point to point in the area with variations only partially dependent on each other. He cannot integrate these together except by arbitrarily ignoring variations within small units of area, *i.e.*, by assuming uniform conditions throughout each small, but finite unit. He may then hope to comprehend, by analysis and synthesis, the interrelated phenomena within each particular unit area.

Although the studies of all the unit areas added together will constitute an examination of the entire region, this does not complete the regional study. As Penck has emphasized, it is not sufficient to study individual "chores" (approximately homogeneous districts) and to establish types of chores. "Above all geography must consider the manner in which these are fitted together to form larger units, just as the chemist does not limit himself merely to studying the atoms, but investigates also the manner of their situation beside each other in individual combinations. The comprehension of geographic forms (*Gestalten*) has scarcely been taken into consideration by the new geography." Just as a mosaic cannot be comprehended, Penck

continues, by classifying and studying the individual stones of which it is made, but requires also that we see the arrangement and grouping of the individual pieces, so the study of the arrangement of the "chores"¹⁰⁰ will present different structural forms of significance [163, 43 f.; in part also in his address given in Philadelphia and published in English, 159, 640].

Our second step—in a theoretical approach to regional geography—is to relate the unit areas to each other to discover the structural and functional formation of the larger region. Since all the factors concerned, and therefore the resultants, have been made arbitrarily constant for each small unit, it may be permissible to speak of functional relations between one factor in one unit and another in another unit, as though these were functional relations between the units themselves—provided that we understand that this is not strictly true. Further, the regional structure produced by this method will have the character of a mosaic of individual pieces, each of which is homogeneous throughout, many of them so nearly alike that in any actual method of presentation they will appear as repetitions in different parts of the region. But we are not to be deceived into regarding this mosaic which we have made as a correct reproduction of reality. It is simply the device by which finite minds can comprehend the infinitely variable function of many semi-independent variable factors. The fiction involved is threefold: we have arbitrarily assumed each small unit area to be uniform throughout; we have delimited it from its neighbors arbitrarily, as a distinct unit (individual); and we have arbitrarily called very similar units identical in character.

There are certain other fundamental limitations that must be insisted upon if we are to compare the face of the earth, even in the more or less distorted form in which the geographer must present it, to a mosaic. We may say that there is a similarity in the detail of technique but, unless we are to return to some teleological principle, we cannot liken the face of the earth to any work of art, for we cannot assume that it is the organized product of

¹⁰⁰ This is the word that Sölch introduced as a term for a unit area [237]. As he defined it the concept is independent of size; the chore is simply an area of land determined by the relative degree of homogeneity of all geographical factors—"geofactors." A chore established on any particular scale could be divided into smaller chores each of which would presumably show a higher degree of homogeneity; the limit of such a process is, of course, the perfectly homogeneous unit, which can only be a point. In adopting this term Penck has used it in a different meaning, according to which the "chores" appear as the smallest land units, indivisible cells, so to speak, which he adds up to form larger "forms." We do not follow this usage, not only because it changes the meaning of the term as the inventor defined it, but also because there can be no smallest land units. As Penck himself elsewhere has recognized, we may continue the process of division indefinitely and our subdivisions are no less (and no more) real units than those we divided.

a single mind. On the contrary, if we may transfer Hettner's analogy of a building built by several architects working independently to Huntington's picture of "The Terrestrial Canvas," we may say that the face of the earth has been produced by the interrelated combination of different color designs each applied by different artists working more or less independently, and each changing his plan as he proceeded. In systematic geography one might say, we attempt to separate each of the individual designs in order to understand its form and its relation to the others and, thereby, to the total picture. Since the total pictures were not produced simply by superimposing different color plates in printing, but are, to some extent, causally related to each other, this separation involves the analysis of the causal and functional relations of each design to the others. In regional geography we first reduce the subtle gradations which the different artists of nature have applied and intermixed on the face of the earth, to the stiff and arbitrary form of the mosaic technique. When we then survey the formation of the mosaic pieces, we are not to expect some unified organized pattern such as every work of art must have. On the other hand, neither need we expect mere chaos, or a kaleidoscope; for we know, from our studies in systematic geography, that there were principles involved in the individual designs, and if our determination of the unit areas of homogeneity has not been purely arbitrary, but has been based on the combination of careful measurement and good judgment, we may expect the combinations of these designs to show more or less orderly, though complex patterns. Further, whatever the explanation of these patterns may be, their form is significant to each of the parts, since the development in each unit part is affected by that in the others.

The last thought leads us finally to another major respect in which any analogy of the earth surface to a work of art is inadequate, namely, the fact that, while the latter is static, consisting of motionless forms, the face of the earth includes moving objects that are constantly connecting its various parts. (To attempt to introduce the artist's special use of such terms as "lines of force," "movement," "opposite forces," etc., would merely add to confusion here.) In other words, the geographer must consider function as well as form. In establishing our arbitrary small unit areas we not only assume that each is uniform throughout in character, but also in function. Likewise, in combining these units into larger regional divisions our problem is complicated by the fact that we must consider the functional relations of the units to one another as well as their form. For example, if two neighboring areal units are so similar that we have painted them as much alike as two pieces of mosaic of the same color, but one of them is functionally related to a city center in one region, the other to a city center in another, are we to include them in the different regions, or, if in the same region, in

which? Any answer to this question can only be more or less intelligent: there can be no one "correct answer."

Just as it is necessary to know the arrangement of unit areas in a region, it is likewise necessary to understand the arrangement of regions to each other. Both Penck and Granö (who follows a similar line of thought [252, 28-31]) would carry the process on to larger units; the size of the areas concerned is immaterial. Regional geography, therefore, studies the manner in which districts are grouped and connected in larger areas, the manner in which these larger areas are related in areas of greater scale, and so on, until one reaches the final unit, the only real unit area, the world.

There is, however, one important difference at the different levels of integration. Both Penck and Granö appear to ignore the fact that the small, but fundamental, element of fiction in the assumption of homogeneity of the smallest units of area increases progressively as one advances to larger divisions. Consequently, the determination of these larger divisions requires increasingly arbitrary distortions of fact.

Assuming the first step, the establishment of "homogeneous units" of area, we may proceed to the second by enclosing in a continuous area which we call a region, the greatest possible number of "homogeneous units" that we judge to be nearly similar, together with the smallest number of dissimilar units. Our judgment of similarity will involve subjective judgment as to which characteristics of the homogeneous units are of greater importance than others, so that, at best, the determination of the region is in a sense arbitrary.

Furthermore we seldom find in reality such a simple solution as that described. Though some geographic features vary but gradually from place to place, the irregular and steep variations of others—such as soils, slopes in mountainous areas, urban settlement, and all the features of essentially linear form, rivers, roads, and railroads—will force us to include in any region, "units" of quite different character. It is necessary therefore to determine which kinds of units are, either in actual interrelation or merely in juxtaposition, characteristic of the region as approximately considered, and then so determine it as to include the greatest number of those several kinds of similar units, with the smallest number of units of other kinds.

In considering any large area in which we have first recognized "homogeneous units" and are attempting to form them into regions, which we can briefly characterize in terms of similarities or relations among some of those units, we may find the task relatively simple in parts of the area, where perhaps the great majority of the units are notably similar. But it may be extremely difficult in parts between these, which may be characterized by

units that are, in some respects, similar to units on one side of them, in other respects, to units on another side. Further, we will find areas containing such a variety of different kinds of units that we cannot see where to include them. In some cases, to be sure, we may recognize such areas as transition zones, but that merely postpones the fundamental problem without solving it. Likewise, to call them "characterless areas," or areas of "general" or "mixed" types is simply to dodge the problem entirely (see Sec. IX E).

The individual student, no doubt, would gladly wipe such troublesome areas off the map, but he is not granted that privilege. Neither is a science which seeks to know what the world is like permitted to ignore more difficult areas and confine itself to those easier to organize into its body of knowledge. Since these doubtful areas are commonly not merely narrow borders of transition, but areas of wide extent, perhaps as great or greater than those more clearly classified, there is no basis for assuming that they are of less importance in the total picture of the larger area, or of the world, than the areas whose character we can more readily describe. Fenneman's statement with reference to the different parts of geography applies even more literally to parts of an area—"there is no more inherent worth in a center than in a border."

Consequently, when we divide any given area into parts which we call regions, so determined that those characteristics that we have judged to be most important may be most economically stated for each region, we cannot avoid many decisions based on judgment rather than on measurement. We must, therefore, acknowledge that our regions are merely "fragments of land" whose determination involves a considerable degree of arbitrary judgment. On the other hand, if all possible objective measures have been used, and the arbitrary decisions are based on the student's best judgment, we may properly regard his regions as having more validity than is expressed by the bare phrase "arbitrarily selected." On the other hand, the view of various writers previously noted, that geographers could be expected to come to approximate agreement on the specific limits of regions—or even on their central cores—appears, in view of all the difficulties listed, overly optimistic.

It hardly needs to be added that the conclusion that geography cannot establish any precise objective basis for regional division does not permit it to shirk the task of organizing regional knowledge into areal divisions determined by the best judgment possible. In order to utilize the generic concepts and principles developed in systematic geography to interpret the findings of regional geography, the latter must be organized into parts that are as significant as is possible. In the present state of development of the field—if not indefinitely—we do not have what would be the simplest solution,

namely, a single standardized and universally accepted division and subdivision of the world into regions. Therefore, each student of regional geography has imposed upon him the task of standardizing his own system of regional division—unless he can utilize that of some colleague. "Standardized" is used here to indicate that the regional system is based on certain standards specifically stated, so that other students may know precisely what the organization is.

The complete organization of regional knowledge in geography requires—whether as a final or as a primary step—the division of the whole world. In whichever direction the process is carried on—and we noted that it requires consideration in both directions (Sec. X A)—the completed system must provide a regional division of the world in which our knowledge of each small part may be logically placed. For this extremely difficult problem we found two different methods of solution. Geographical knowledge may be logically arranged in systems of areas classified according to certain characteristics of the areas. Though this method has distinct utility for comparative purposes, it does not permit organizing all regional knowledge into one system, but requires several independent systems. Furthermore, it does not present the actual relations of areas as parts of larger areas. These relations can be included only in a realistic division of the world into a system of specific regions, in which all regional knowledge may be incorporated in a single logical system. Such a system unfortunately is not provided the geographer by any natural division present in reality, nor by anything corresponding to the simple division of organic forms. It must be developed and constantly modified by geographers as a result of research, at the same time that it is being used, always in tentative form, as the organizing structure of regional research.

We have suggested, in very general terms, the manner in which the problem of delimiting regions may be met, in order that geographic knowledge may be organized intelligently in regional units. What kind of knowledge is to be included within the regional study itself? So far as the nature of the material is concerned, we have previously indicated that a complete geography of a region includes all the kinds of phenomena that are included in systematic geography—insofar as they may be present in the particular region. The only field of geography that is not included in regional geography, as well as in systematic geography, is historical geography. As there was a different geography in every past period, there may be any number of independent historical geographies, each including its own systematic and regional divisions.

The kinds of phenomena present in regions, the particular manner in which they are present, and the nature of their interrelations, both within each unit area and across unit divisions, determine the particular forms and the functions of the area. Though most students agree in theory that these are of coordinate importance, much of the work of recent decades tends to emphasize the study of forms to the neglect of functions. We found this to be particularly pronounced in the work of the "landscape purists" (Sec. VII E). On the other hand, Granö finds that many students, like Spethmann in particular, conceive of an area as "the field of forces, as a dynamic complex." Geography, Granö insists, is not the study of forces, of interrelations, but the study of things in interrelation in areas. Judging by the major example which he has presented in German, Granö himself tends to emphasize physiognomy and gives but little attention to the functions of areas [252, 114 f.; cf. Waibel, 266, 204].

When we speak of the functions of areas, we are not to forget that in reality the area is not a thing that functions, it is only certain things within it that have functional relations to things in other areas. If our fiction of the small homogeneous areal unit, uniform in both form and function, permits us to speak figuratively of the unit area as having a functional relation to other unit areas, we are not to ignore the fictive character of this concept by attempting to consider areas as having, in themselves, functional relationships.

In particular, it is necessary to note that the concept of the small areal unit breaks down when we attempt to study "the genesis of an area." When we study the previous historical stages in the geography of the area, we find that any one of our small unit areas of homogeneity may not have had in the past even that incomplete degree of validity that we may grant it today. That is to say, since areas, no matter how small, do not grow as units, but change only as a result of the differential change of different things within them, the unit area of today was probably not a unit area in an earlier stage, and will probably not be in a future stage. The very concept of mosaic is incompatible with the concept of gradual and differential change. Consequently, the study of genesis in geography can only be undertaken in the form of systematic studies: the study of "the genesis of an area" can only be broken down into studies of the genesis of each of the various objects contained within it. These are therefore studies in systematic geography; to what extent they may be desirable for an understanding of the geography of any region is a controversial question which we touched on earlier, and need not reconsider here (Sec. VI B).

We should now be in a position to answer the question that is of greatest importance in contemplating the possible development of regional geography: may we hope to progress in this branch of our field to the construction of universals, of generic concepts, and scientific laws or principles?

One form of generalization used in regional geography we have already described: the construction of regions from small unit areas. The philosopher, Kries, has distinguished such generalizations of heterogeneous and semi-independent parts as a third type of scientific description, together with type concepts and the description of the unique [according to Graf, 156, 57-62, 105]. The importance of the distinction lies in the fact that this form of generalization offers no basis for establishing general principles; for that we must have type concepts.

It is obvious that any universal principles that we might attempt to construct on the basis of the fictive areal units set up for the purposes of description, could have no more validity than the units themselves. Unless these are taken as extremely small units, the margin of error introduced by our personal judgment would lead, in any principles we might set up, to a degree of error so great as to render them of very doubtful value.

Regardless of that essential difficulty, however, we found that even these arbitrary units, each involving a complex combination of associated forms, cannot be classified into a system of types based on the sum totals of its varied and semi-independent factors. Though in any one region we find unit areas so similar that we may, with but a minor degree of error, call them alike, we do not find unit areas of that kind of similarity in other regions of the world. A small district somewhere in the Upper Rhine Plain may be very much like many other such districts in the same region, but no matter how small a district we take, it is fundamentally different from any unit area in any other world region (see Sec. XI D).

We arrive, therefore, at a conclusion similar to that which Kroeber has stated for history: "the uniqueness of all historical phenomena (meaning, I take it, the particular combination of phenomena at a particular time) is both taken for granted and vindicated. No laws or near-laws are discovered" [116, 542]. The same conclusion applies to the particular combination of phenomena at a particular place.

One is not to suppose, however, that regional geography is studied without the use of generic concepts and principles. On the contrary, the interpretation of the interrelations of phenomena within each region depends upon the type concepts and principles developed in systematic geography [cf. Schmidt, 7, 194]. In other words, for the individual items included in regional geography, and the simpler relations between them, we depend

constantly on universal concepts supplied from the systematic studies, but the total interrelated combination of each areal unit represents an essentially unique case for which we can have no universals.

An objection may be made that one form of study used by many geographers in the consideration of regions represents an approach to the construction of scientific laws—namely what has been called “comparative regional geography,” the comparison of regions of notable similarity. As a current example we may cite Maull’s effective comparison of the Amazon, Congo, and Insulinidia areas [179, 184-6]. The fact that in other sciences “comparative studies” have marked an adolescent period preceding the flowering of a nomothetic science, has led many to suppose that regional geography might be expected to grow out of its youth by progressing from comparisons to scientific principles.

The essential idea involved is nothing new in geography. Introduced by Humboldt—if not by earlier writers—it was used, according to Hettner, by Brehm, Nehring, and particularly by Richthofen [161, 403 f.]. Plewe found, however, that these represented merely occasional examples, that our literature contained no comparative regional geography as a branch of the field [8, 46-55, 77]. Such occasional comparisons, he noted, are used in all sciences, citing as an example, Th. Litt’s comparative study of Kant and Herder (Berlin, 1931). Historians, we may add, frequently find it valuable to compare the developments of any two or more periods that are significantly similar in certain respects. These examples should make us sceptical of the likelihood of our discovering anything that could be called laws, or near-laws, of regional geography.

Passarge recognized the limitations that prevent a comparative *Länderkunde* from developing universal concepts, but still (in 1936) believes that these can be avoided or overcome in a comparative *Landschaftskunde* [272, 61]. In order to discover the laws of regions it is necessary, he says, to have a *tertium comparationis* and this, he believes, is provided by his system of abstract types. As we saw in our previous discussion (Sec. X E) he has, in part, merely reduced the difficulties, by reducing the size of areas concerned, and for the rest he has simply dodged the limitations by setting up types that are not even in outline complete abstractions of real areas. The difference between the real *Land* and the real *Landschaft* (as area) is only a difference in size; a *tertium comparationis* is equally impossible in both cases. We may go on comparing areas of whatever size forever with no hope of discovering regional laws.

Plewe concludes, therefore, that the comparative study of regions is neither a preparatory step to a nomothetic regional geography nor an inde-

pendent branch of geography. Ritter's introduction of the concept, over a century ago, represented a transfer from a quite different kind of science; he never clearly defined his concept, and others who have taken it up have used it in many different ways but without leading to any important development [8, 82 f.].

Nevertheless the use of this method, as a supplementary device, appears to offer certain distinct advantages. If widely separated regions are in many respects similar, so that, in respect to certain elements or element-complexes, they may be classified as of the same type, the comparison of their similarities, and particularly of their differences, may well serve as a check on the interpretations we place upon the relation of phenomena within each one of them.

Even more useful is the employment of this method in the comparison of localities within a major region, where there may be a much larger number of element-complexes of the same type. By selecting those localities that are alike with respect to the greatest number of features, and comparing them with those that are like them in many, but not all, of these features, we may have a key to the significance of specific features for the area as a whole.

To take a well-known example: the consideration of the major characteristics of the Cotton Belt as a whole might lead one to suppose that—taking certain cultural conditions for granted—the importance of cotton in the area was to be explained simply in terms of climatic conditions. We have learned, however, by contrasting the localities in which cotton is the all-important crop, with those where cotton is of minor importance though the climatic conditions are the same, that the cotton crop of the South as a whole is not to be understood without considering the character of the soil.

Likewise, American geographers, at least, have long realized what is not so clearly recognized in popular thought—or even by many European geographers—that the climatic conditions of the South do not directly explain that feature which is of greatest importance in the contrast between North and South—namely the high proportion of Negro population. By the same method of comparison of localities one finds that this element—and all the cultural elements associated with it—cannot be understood without considering the combination of climatic and soil conditions that are necessary for cotton. This conclusion, however, is incomplete: in the cotton district of greatest importance today, in central Texas, the proportion of Negro population is low. The complete explanation can be reached only when one also compares the localities which were developed for plantation crops—including tobacco as well as cotton—before the end of the slavery period, with those localities developed for the same crops since that time [359].

This method of comparing localities within the same larger region might appear to lead to generic principles. But it can lead to conclusions that are applicable only to the single larger region concerned. If we should add to the districts of the Cotton Belt a district in the Yangtse Valley and a district in the Bombay province, we could not include them all under any generic concepts of districts. In the comparison limited to districts in the Cotton Belt, we are not, as we noted in an earlier connection, comparing separate units, but only similar parts of a single larger region, parts whose similarity is simply a result of the fact that they are parts of the same region. Valuable as the device may be for checking our interpretations, it leads to no universal concepts or principles.

Regional geography, we conclude, is literally what its title expresses: the description of the earth by portions of its surface. Like history, in the more common sense of periodic history, it is essentially a descriptive science concerned with the description and interpretation of unique cases, from which no scientific laws can be evolved. Though this is undoubtedly a disadvantage, making the interpretation of findings far more difficult than in those fields that are able to develop general laws to explain individual cases, it does not mean that regional geography lacks any scientific goal. As previously noted, the construction of scientific laws is not the purpose of science, but a means toward its purpose, the understanding of reality. To any "who find the title 'earth description' (*Erdbeschreibung*, or *geographia*) insufficiently learned and scientific," Heiderich has answered, "description is the last and highest goal of scientific work, to be sure, not a mere outward external description that remains on the surface of the object, but a description that aims . . . to comprehend synthetically all that has been learned analytically from the characteristics of the object" [153, 213]. All that science requires is that, in order that the interpretive description may have a maximum degree of accuracy and certainty, universals shall be constructed and used wherever possible. Regional geography utilizes all the appropriate generic concepts and principles developed both in the systematic sciences that study particular kinds of phenomena, and in systematic geography which studies their relations to each other over the earth.

The conclusion to which we have arrived concerning the nature of regional geography may enable us to answer one or two questions that have been raised by a number of students in very recent years. The course of thought among American geographers concerning regional studies has been discussed in two articles published in Germany during the past year, by Broek and by Pfeifer [108; 109]. From these surveys, and the critical

articles to which they refer, the reader might suppose that after a period of enthusiastic concentration on regional studies that was introduced by the methodological papers of Barrows and, more particularly, of Sauer, American geographers had now begun to doubt whether much was to be expected from regional geography after all. It may be that the testimony has been exaggerated in the echoes back and forth across the Atlantic; possibly we are presented with a revolt within a single university department that has reverberated among its present and former members here and in Germany.¹⁰⁷ Undoubtedly, however, other American geographers in oral discussions have expressed a note of scepticism concerning the results to be expected from regional studies.

In a number of cases, the sceptics have spoken, or written, as though after a long and earnest attempt to advance geography by regional studies, we had discovered that the works produced did not add up to, or yield, significant general results. It is difficult to believe that this argument is meant seriously. American geography has concentrated its efforts on regional studies for scarcely twenty years and never completely. During that time, perhaps a

¹⁰⁷ In a critical comment on these studies, Platt speaks of the misunderstanding of methods and purposes on the part of writers who have not been eye-witnesses of the type of field work involved nor participants in discussions current during the past fifteen years among those experimenting in that work [224, 125]. To explain this difficulty, it is important to remind ourselves of the major distinction in attitude toward methodological discussions between American geographers, as a group, and the Germans. In marked contrast with the latter, American students seldom regard such problems as appropriate for research studies prepared for publication. On the contrary, such problems are more often regarded as matters of opinion, on which individuals may express their personal views in more or less informal symposia and, particularly, in oral discussions "out-of-meeting." Only in the "mature" pronouncements of the association's presidents do such views commonly attain formal presentation—and then usually long after they have been most influential. The few exceptions, it is significant to note, have been contributed by students influenced by the German attitude. Since these have come largely from one institution, the development of current methodological thought in American geography may well appear to a foreign student to be largely the development of thought in California [*e.g.*, Dickinson, 202]. Both Brock and Pfeifer attempted to escape this limitation, but were hampered by the fact that the methodology of other American students appears, in publication, only in reports of fragmentary statements in symposia or in even more fragmentary explanations included in their actual research studies. There is no literature available, comparable to that in Germany, in which one may directly trace the development of the methodological views of American geographers; the task is therefore exceedingly difficult for any students remote from the actual course of development—which in large degree, unfortunately, include the group on our Pacific Coast. Probably a more reliable source than the few methodological treatises is to be found in such thorough studies of the general development of American geography, as that of Colby [107].

score or so of research students have each made one, two, or three regional studies in areas scattered from the Peace River Country to São Paulo, from Europe to China. Since neither of the two principal American promoters of the regional concept in theory has presented a concrete example of a full study in (present) regional geography, each of the individual research students has had to work out more or less independently his own methods of determining his region, of selecting the phenomena for consideration in it, and of presenting his results. Would anyone seriously consider that we have had a fair test of the possibilities of developing general results from regional studies? Even if all the work had been carried out under standardized procedures, such a small number of cases scattered over more than half the world could hardly be expected "to add up" to any general results, or to provide the basis for generalizations.

It seems more likely that many students have begun to suspect, for other reasons, that no matter how many regions are studied, no matter by what methods, no scientific laws will be forthcoming. This conclusion we have found can be thoroughly demonstrated in theory, so that we can agree that any who have made regional studies with that ultimate purpose in mind have been following a will-o'-the-wisp; the sooner it is abandoned the better for all concerned.

If, however, the purpose of geography is to gain a knowledge of the world in terms of the differential development of its different areas, the task of studying regions as areal divisions of the world, is not subject to question in geography. Neither need the workers in any science feel discouraged if the efforts of a relatively small number of workers over a period of less than twenty years have produced less than enthusiasts led them to expect. Though the object of geography, the world, is large, it is limited in size, and we must assume that geography has a long life ahead of it. No doubt the group efforts of American geographers would show more productive results if they could concentrate the attention of all or most of their members on some limited part of the world—as French geographers have done on their own country. But the many factors that persuade students to travel far afield are not to be restrained, even if it were desirable. One can only hope for a larger total number of workers, and possibly, for increasing concentration within this country of the work of particular groups—as at Wisconsin—on the regions of a relatively limited area. In particular, as Finch notes, we should not expect results of far-reaching scientific value from the practice of "skimming the cream of the more clearly given from a region and its abandonment for another area" [223, 26]. The value that studies of this kind may have for teaching purposes may justify the time and effort

spent on them—provided that the areas concerned are significant for class instruction. Lasting progress in research in regional geography will require a much greater amount of concentration of the individual's time—whether or not one would go as far as Finch and consider one region as sufficient for one student's life work.

On the other hand, these considerations do inevitably raise the question of what size of area should be considered worthy of research in regional geography. The regional studies launched under Vidal's leadership in France formerly examined areas the size of a province, but increasingly smaller areas have been selected. Demangeon feels that the extreme limit of "microscopic" study has been reached by Allix, whose examination of "L'Oisans," a part of an Alpine valley in the Dauphiné smaller than an *arrondissement*, requires 915 pages, with a bibliography of 861 works [329]. This averages, Demangeon reckons, a little over a page per square kilometer or for 12 inhabitants. American geographers, by comparison, hardly seem justified in applying to their work the word "microscopic."

The question raised admits of no simple answer. Historians welcome extremely detailed studies of very short periods, in addition to less intensive studies of an extensive series of periods. The criterion, in either field, is the same—namely the significance of the study—but that is a criterion for which we have no objective measure. We have previously suggested two major considerations—namely, the significance of the area in itself,¹⁰⁸ and its possible significance as representative of a large area, or a large number of similar small areas. Outside of the proper interest of the citizens of L'Oisans itself in the geography of their own district, we may assume that the world of knowledge in general has little need for such an exhaustive study of this small and unimportant district. On the other hand, if we had but little knowledge of the valleys of the French Alps, and reconnaissance had shown that this particular district was in large degree representative of hundreds of others, such a study might provide us with an approximate view of the regional geography of the entire area—or of a large part of it. Presumably, however, such a study would be limited by the desire to express primarily

¹⁰⁸ In the previous discussion we considered the significance of an area in itself merely in terms of its relative importance in the actual world. Finch reminds us however that an area may have a special significance to our science of the world if it includes some unanswered question, if it has some peculiar association of features [223, 23]. I find it particularly desirable to add this criterion since it would seem to offer the only justification for an American geographer to have occupied himself with such a small, remote area as Upper Silesia, representative of almost no other areas near it [355; 356].

those characteristics that were representative, and one might question whether that would require a thousand pages. Demangeon finds much of the study superfluous because it merely duplicates findings that Blanchard and others have presented in works on similar districts. Insofar as Allix's work has served to corroborate that of his predecessors, that fact might have been more briefly presented. On the other hand, another competent critic¹⁰⁹ finds that Allix has contributed a much more thorough treatment of the problems representative of the French Alps than have any of his predecessors.

It is particularly against such "microgeographic" studies—to use Platt's term—that criticism of regional geography in America has been directed. Recognizing that it would be impracticable, in any reasonable length of time, to cover the whole land area of the world by the total addition of such small studies—and that the total might be indigestible if it could be attained—critics have feared that we would have but a miscellaneous collection of scattered pieces selected at random [*cf.* Leighly, 220]. More particularly, however, the critics have asked what general principles can we expect to derive from such minute and scattered studies. Even some who have made such microgeographic studies, like James, have given expression to a later feeling that "the more detailed and specific is the study the more insignificant are the results" [286, 84].¹¹⁰

To these attacks, Platt, in particular has replied vigorously, both in two published papers [221; 224] and in unpublished statements read before this Association. Microscopic geography, he observed in one of the latter, developed "as a rational and timely drive against the limitations of armchair compilation from promiscuous data, of subjective impressions from casual travel, and of environmental theory not founded on data." To attain these purposes, geographers took to the field and "in the field all geographers are microscopic." There "they face the geographer's dilemma in trying to comprehend large regions while seeing at once only a small area." They do not, he insists, plunge into detailed studies of minute areas because the methodological conclusions of others have led them to believe that thereby something will ultimately be gained for geography. On the contrary, their

¹⁰⁹ J. Sölch, in personal communication.

¹¹⁰ This statement may possibly account for Pfeifer's conclusion that James "questioned even whether the 'microscopic method' represented any advance at all" [109, 115 ff.], a conclusion that is certainly not consistent with the general view expressed in such statements as "the detailed study of the small area becomes significant in so far as it contributes to the more accurate generalization of this detail on chorographic (mesochoric) or geographic (macrochoric) maps"; or the conclusion: "topographic (microchoric) studies are vital parts of the chorographic (mesochoric) or geographic (macrochoric) investigations" [286, 85 ff.]

own efforts to comprehend areas of larger extent has led them to the reasoned conclusion that, in addition to general reconnaissance studies and detailed systematic studies covering large areas, accurate generalizations for larger regions require an examination of the total fundamental complex of inter-related features that can be examined, in detail, only in the small area.¹¹¹

Platt's defence of microgeography, however, is based less on theoretical discussion than on the actual work that he has been carrying on for some years in Hispanic America, which forms the most significant series of microgeographic regional studies in American geography [listed in 221, 13; to that list should be added 224]. Of the sceptical questions that have been raised concerning the value of such a series of studies, many appear irrelevant to its purpose. This, I take it, is simply to increase our organized, objective and reliable knowledge of the lands south of the Rio Grande. That such knowledge of the different parts of the world is desirable and requires the research of trained workers is, we repeat, the fundamental justification for the field of geography. That our present knowledge of the Hispanic American area is inadequate is obvious to anyone who has attempted to gather the materials necessary even for an elementary course concerned with that part of the world. Consequently, we are not to test the value of such a series of detailed studies of scattered districts by asking whether they can yield us any "scientific principles," or whether they will aid us in drawing conclusions concerning "the larger relationships" of which Pfeifer speaks [109]. So long as Platt does not claim that all geography should consist of such "microgeographic" studies, or of regional studies in general, these questions are irrelevant. The relevant question is, granted that we want more adequate knowledge of the geography of South America, is his method of study appropriate to produce such knowledge?

Few will question the inadequacy of the general surveys of South America now available. In his most recent study, on coastal plantations in British Guiana, Platt has noted that the best available, generalized maps of the con-

¹¹¹ By way of illustration, Platt notes that Finch has contributed not only the extremely minute study of Montfort [285], but also systematic studies covering the agriculture of the world [with Baker, 343], to which might be added the many essentially research studies included in the more recent text written with Trewartha [322]; Whittlesey not only surveyed a small district in Wisconsin ["Field Maps for the Geography of an Agricultural Area," *Ann. Assn. Am. Geogr.*, 15 (1925), 187-91], but has endeavored to establish the major agricultural regions of the world [319]. Furthermore, we may add, the latter finds as a major difficulty in interpreting the findings of such a world survey, the lack of detailed studies of small, representative, districts, such as Dicken has offered for the Mexican highlands [340], and Platt has presented for several districts in Hispanic America. Finally, in his most recent study, Platt has shown directly the relation of microgeographic work to the broader purposes of reconnaissance [224].

continent give erroneous impressions of the soils, vegetation, and population density of the specific districts he studied. Even if we had accurate detailed information on the climates, land forms, soils, crops, races, and commerce of South America, these would not add up to the geography—the areal differentiation—of the different parts of that continent. In studies limited even to provincial scale, the American student is frequently baffled because he lacks the detailed knowledge of the cultural element-complexes that are basic to the cultural geography of the region. For areas in United States or Europe, he may have acquired that knowledge unconsciously, whether as a by-product of field work, or merely from his general knowledge. These essential features must be studied first in relatively small areas—particularly in a world area where there is lack of cultural homogeneity. If, then, one has acquired an understanding of a particular ranch in Panamá and may be permitted to assume somewhat similar features scattered through a large area, one has a more correct picture of the geography of the larger area concerned than can be acquired by any small-scale measures [see Platt, 221].

The essential assumption in this proposition, of course, is that the minute district studied is in fact representative of others; as Finch notes, it can hardly be typical in any full sense [223, 24]. If it is representative, however, it presumably will be typical in certain limited respects, and it is important that we know in what respects it is approximately typical. In areas that are adequately covered by census and climatological data, geological, topographic, and soil surveys, it may be possible to give approximate answers to these questions from the study of such data. The utility of element-ratios and isopleth maps in this connection has been suggested previously. In other areas, one can only depend on the student's judgment formed from reconnaissance. Though such judgment can only give answers that are far removed from scientific certainty, they are better than no answers at all, and should therefore be provided—even at the risk of being shown erroneous by later work by the same or other students.

Perhaps only in his most recent study has Platt clearly demonstrated the relation of these detailed studies of small districts to the reconnaissance study of large areas. Though the microgeographic area which he studied in detail is not, in this case, "typical of broad regional types," it is shown to be "a normal feature of a coherent plantation district, which in turn has a consistent place in the intricate geographic pattern of South America" [224, 123 ff.]. No doubt the significance, to broader regional knowledge, of his previous studies in small and widely separated districts, apparently chosen at random, will be made clear in the ultimate publication of his "reconnaissance study of Hispanic America," of which these detailed unit studies are to form integral parts.

In sum, the student who presents a study of a small area of no special importance in itself, needs to keep in mind that the purpose is not to present the area in itself, but to provide an accurate illustration of the representative character of a larger region, too large to permit of such intensive study. So long as he keeps this broader purpose in mind, there are no grounds apparent on which we can prescribe the minimum size of area that may be studied.

I. THE INTEGRATED DUALISM OF GEOGRAPHY

The final question raised by our examination of the nature of geography, as presented to us both by its historical evolution and by the logical consideration of its position among the sciences, is the same question that has provoked so much controversy throughout almost the entire history of modern geography—certainly ever since Bucher raised the issue in 1827. If geography studies the areas of the world according to the differential character of their phenomenal contents, either according to a systematic point of view, category by category, or, on the other hand, according to an areal point of view, each area in terms of all its heterogeneous phenomena, how can these two points of view be related to each other in a unified field of geography?

Our historical survey showed that, while modern geography from its beginnings has included both of these points of view—in theory even in Varennius's outline—it has experienced notable shifts in emphasis from one to the other. Whereas the work of Humboldt combined both points of view, under the influence of Ritter, systematic studies were placed in a subordinate position and easily lost sight of. Though the protests of Bucher and Fröbel were of no avail at the time, a later generation following Peschel, and motivated by scientific standards developed in such fields as geology, swung the center of interest the other way. As late as 1919 Hettner found that in Germany systematic geography was generally regarded as "something higher, more distinguished" than regional geography. He therefore repeated the arguments that he had presented at various times during nearly a quarter of a century to show that the two parts of the field were scientifically on the same level [142, 22 f.]. Less than a decade later, however, he found it necessary to present opposite arguments to urge the same conclusion; for "youth, which is given to exaggeration, has turned far too much away from systematic geography" [161, 401]; (we can hardly suppose that Hettner was unaware of the fact that some of those concerned were not much younger than he). The reaction that had taken place earlier in France, under Vidal, swept German geography in the post-War years toward an increasing emphasis on regional geography, as the real goal of geographic work. Thus Obst, believing that one could develop a science of "*Länderkundliche Typolo-*