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A Synthetic Method of Determining Geographical Regions: Discussion

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present method of each worker surveying the whole world does not permit of such accurate work, nor is it capable of adequate criticism and co-operation.

The scheme is now put forward for the sake of obtaining discussion on the main ideas, and as a suggestion to other workers who may be able to undertake the study of particular regions.

After Dr. Unstead read the paper a discussion followed.

Dr. J. W. EVANS: We are all very much indebted to Dr. Unstead for the interesting and suggestive way with which he has dealt with a difficult problem. I may say at once that I am on the whole in agreement with the point of view he has taken. The question of the classification and delimitation of different areas depends, of course, to a large extent on the purposes for which the classification is to be employed. It seems to me that the great object of geography is to place on record, especially for future generations, the distribution of phenomena on the face of the Earth at the present time, and the areas into which the Earth is divided for this purpose must be determined according to the facts which are to be recorded. There must be zoological regions in order to record the present distribution of animal life; and these will in many cases be different for different classes of animals. In the same manner to express geological facts the areas will vary according to the point of view. You may, with Dr. Unstead, place great stress on structure, and classify together those regions which have the same structure, even though the surface forms and lithological characters are different, or you may take either of these last as your basis of delimitation.

Such a multiplicity of classifications seems inevitable, particularly if the divisions are of considerable size; but I agree with Dr. Unstead that to obtain a useful classification and delimitation of geographical districts for general purposes, and especially in relation to human development, you must begin with comparatively small areas. A particular spot may be taken as a starting-point, and the conditions that affect the human race in that locality, such as the temperature, the rainfall, elevation, surface forms, and other less obvious factors carefully considered. If, then, you move on in any direction you will find these conditions gradually changing, and where these changes are sufficiently numerous and important to affect materially human existence you will be justified in saying you have come into a different region. The areas arrived at in this way will vary greatly in size and form.

I agree, too, with Dr. Unstead that you must judge largely by results. A particular influence may be unimportant in one area, and of vast importance in another. The lower portions of the basins of the Amazon, the Congo, and the Ganges are very similar in climate and other respects, but vary greatly in the condition of their human population. In the African area there are germs that make malarial diseases of the very greatest seriousness, especially to Europeans, and the result is that for a long time it was shut off from the outside world. In the Amazon region there are more healthy conditions, but its remoteness and the character and scantiness of its population has retarded its development. On the other hand, the proximity of the north of India to the ancient civilizations has caused its early development and made it one of the most populous regions in the world. The chief point with which I am inclined to differ from Dr. Unstead is that I doubt very much whether you will gain anything by uniting the minor divisions to form others of larger size. You

will rarely find two regions showing very great similarity, and when you do they will not as a rule be contiguous.

Contrary to the opinion expressed by Dr. Unstead, I believe that from the human standpoint the political conditions and divisions are of the very greatest importance. According to the political system that exists in a particular country its development is influenced perhaps more than by any other single factor. It is impossible to exaggerate the effect that any changes in political boundaries and institutions resulting from the present war may have on the evolution of the human race.

Prof. LYDE: I have had the opportunity of reading the paper, and have covered the margins of my copy with all sorts of queries and cross references, but have not time to deal with them. I would like to take up one point, just the real aim of this synthetic method of teaching, and treat it from the historic point of view as far as my own experience goes. Dr. Unstead's paper interests me most on account of the change I have been noticing in him for some time now—the change from an ultra-analyst to this statesmanlike synthesist. It is due to his persistent industry and untiring energy. I think it is true of all men, especially of students and statesmen, that such an attitude of mind, tireless industry, honesty, and courage to confess a change of view is very honourable; and I would like to express my admiration for this trait in Dr. Unstead's work. When I come to criticize the paper from this synthetic point of view, I represent one of the few left in this country now of a little band who have always taught on the synthetic line. We had at first a great deal of friendly ridicule, but it seems to be passing away now, and Saul is joining the Prophets. I believe we hit upon an indigenous British method, and we knew too little about German and American methods to be lured away from that as greater geographers were. As I was the Chief Scribe, I would like to mention to you some actual dates. Our first publication in 1895 stated definitely we had discarded the old stereotyped way of dealing with the Earth, and were trying to replace it with one in which we could synthesize phenomena in groups of kindred character. Next year we repeated a similar thing, but tried to fling our net wider. Then, in 1898, I talked to Dr. Herbertson, and said if only he would help us, we might make some progress. I suggested a book on 'Man and his Work,' and you know the result. That was his first concrete step to the position he afterwards developed in the 1905 article. But that unfortunately took him farther away from us and our aim. Then, in 1909, in another little publication I discussed Dr. Herbertson's "major natural regions," and rejected them on the ground that their unity was only physiographic, while their human note was often contradictory. But our aim, while relating each region to the Earth, was still more to relate the people to the place. We appealed for a synthetic method of work; that geography must be "outlook," not "inlook"—a synthesis, not an analysis, and that its method should be exactly what Dr. Unstead asks us to do now, our exact words being "make the regional synthesis by moving gradually out from a chosen base." Of course, therefore, we entirely sympathize with and support Dr. Unstead; and I would even venture to suggest that the experience of twenty years which we have had in actually trying to teach synthetically, may throw light on the comprehensive view, the moving outwards from the chosen base, and the precise end to be sought. We had three lines of approach—a world approach, an historical approach, and an economic approach. Now in this paper, for instance, Dr. Unstead asks that we should pay special attention to such things as the relation of an area to the Atlantic and its accessibility. To us that was part of our essential

background. We began with a world-picture. We traced, first of all, the great world water-partings, and therefore from the first, whatever afterwards was done, everybody realized the alternative of the wide ocean with the narrow hinterland, and the narrow ocean with the wide hinterland; every one had at the back of his mind, *e.g.*, the conviction of a certain picture of a typical Atlantic hinterland. Of course we associated the fishing industry with a coast good for fishing, and the control also of that. The same with our historical geography. We followed old Rome to Dalmatia. She went there to stop the pirates. We were quite prepared to believe that such a coast must be a pirate coast; quite prepared to believe that the pirates were under a queen; so far from being surprised at it, we expected it. We always recognized such an organization with the fishing coast and industry. That is our answer to Dr. Unstead's appeal that we should regard these things: pay special attention to man's distribution, to his characteristics and activities. Of course we pay attention to man: he was the only invariable object of our synthesis. So far did we ignore anything we could not relate by cause or effect with man, that we never studied features or phenomena for their own sake. When Dr. Unstead goes on to say that "in none of these cases did they consider the political, linguistic, racial, or religious affinities of the people," nothing could be less true of the work we were doing. We were always trying to do that, and we did it exactly in the way he asks us to do it. We worked outwards synthetically from a small area, and we pressed the predominant note; or, as we called it, the differentiating factor. To give a couple of instances. Nobody could begin the applied geography of Asia without having at the back of his or her mind a sub-conscious picture of the Human Note over this huge great continent; how in the region flanking the cold desert the wavy-haired man was dominating the lank-haired; in that flanking the hot desert the lank-haired was dominating the wavy-haired; in the tropical monsoon the wavy-haired was dominating the wavy-haired; and in the temperate monsoon the lank-haired was dominating the lank-haired. That was part of the mental equipment with which they went to the area. It was essential. We did the historical geography of Germany in the same way. Our chosen base, of course, was Hohenzollern, with its streams flowing to both Rhine and Danube. We followed the Hohenzollern occupation of the Nurnberg market which linked the Rhine and Danube trade. We argued, with Frederick of Hohenzollern, that, if the link between these two rivers was so profitable, it was worth while buying the Brandenburg link between the other two great rivers, Elbe and Oder. We noted the typical steppe tyranny of Brandenburg, associated with the military and ecclesiastical arrogance of the Teutonic Order in East Prussia. We compared that Order with the rival Templars and Hospitallers, emphasizing the fact that, with equal military and priestly arrogance, it added the arrogance of a narrow tribal base. It was, therefore, poorer than its cosmopolitan rivals, and courted the towns, and so survived when the Templars collapsed. And so we moved on till we saw Albert of Hohenzollern made the Grand Master by clever intrigue in the middle of the Reformation ferment—to declare himself a Protestant, secularize his territories, and make them an Hereditary Duchy to the House of Hohenzollern.

These were the sort of things that were part of our mental equipment, and you could not go to the area without having them sub-consciously in mind. We did exactly the same thing with our economic geography; but the only thing I have time to suggest is that I think there was a little inconsistency in Dr. Unstead's paper. At the beginning of it he presses that the other factors were independent and of equal importance with the relief and climate. Then later on

he presses the importance of emphasizing the predominant factor. North-Eastern America may be like North-Western Europe in, as he says, "most particulars," if you mean numerically most; but the particulars are not of equal value—the differentiating factors say that it is not like North-Western Europe, *i.e.* an area north of 50° and east of the Atlantic and an area south of 50° on the other side. In any case history does not repeat itself, and geography does not either. Just as he objected to a "fictitious simplicity," so we object to a "fictitious unity"; and when you have synthesized your "major natural regions," or—as I would prefer—"minor natural regions," and added your human note, what have you got? You have your geographical region, but it has no association whatever with the daily life of the world; it has no unified statistical record, no accepted common interest. This little band of teachers which I have been trying to speak for, would have accepted most cordially every single process Dr. Unstead suggests, and thanked him most warmly for them, but our end was slightly different. Our experience would suggest that his end is very difficult of attainment in the present state of Society—and nationality has not been weakened by this war—and that he cannot do the thing in a way that would be worth doing. It is not worth while doing it because there are no large geographical regions truly comparable, so that you could classify them together. On the contrary, his method does give a convincing picture of the political unit.

We would, therefore, cordially welcome Dr. Unstead—with his wide knowledge, his untiring industry, his courage, and his ingenuity—as a convert to our general geographic creed, but we would hope that he would become a convert also to our particular aim—to picture the political unit, a picture which is both attainable and really valuable, rather than try to picture what seems scarcely attainable and has little value in practical life.

MR. ROXBY: I do not feel that my mind is sufficiently made up on this subject to enable me to make anything like a reasoned contribution to the discussion, but I want to raise one or two points. I read Dr. Unstead's paper with great interest, and I think it is very suggestive. I hope that eventually Dr. Unstead, with the help of a good many other people, may be able to build up a map on the lines which he suggests. I do not feel, however, that this method ought to supersede the one which Dr. Herbertson advocated, and I do not suppose that Dr. Unstead wishes to suggest that it should. In his paper Dr. Unstead asks the question whether the term "natural region" is intended to relate only to natural, in the sense of physical conditions, or to indicate the regions which are marked out by natural, as distinct from artificial boundaries." I have always thought of a natural region as denoting physical unity, and I think of regions of different physical patterns. That being so, I should regard the idea of geographical position, in the sense of relative accessibility, as extraneous to the root idea of a natural region. Of course that must be taken into account when you come to applied geography, and a very interesting study results from comparing two regions similar in physical conditions, but differently placed with regard to the world's markets. We can then begin to distinguish the relative importance of different factors. So, also, with human conditions. These, too, I regard as extraneous to the root idea of a natural region, but the same principle holds good. If you have a number of regions physically alike, but under different human conditions, then it is very interesting to see whether they develop along similar lines. If they do not, to what differences in human conditions is it due? For example, take Java as illustrating a certain very important type of natural region. Under certain conditions of Government,

Administration, etc., it has been brought to a very high state of economic development. There are a good many regions with somewhat similar physical conditions, and it will be interesting to see how far they approximate to the Javanese type of economic development. It seems to me that we can to some extent study the effects of different tropical administrations by comparing Dutch Java with the development of other similar islands under the control of a different Power.

So from this point of view it seems to me that we gain by keeping the idea of a natural region to one which is determined by physical type and physical type alone. I do not say that the other method of classification is not also good. It is another question whether Dr. Herbertson's classification of "Natural Regions" is the best on the assumption I have made as to the criteria to be adopted. I think myself that it is a very suggestive classification, and I should like to take this opportunity of saying how useful I have found it in university work. Dr. Unstead has pointed out some weak points in it, and no doubt many modifications could be made. But the main point which I wished to raise was as to the meaning of the term "natural region."

Mr. B. C. WALLIS : I should like to turn the discussion a little to what I take to be the main purport of Dr. Unstead's paper, the antithesis between the synthetic and analytic methods. Prof. Lyde's remarks show quite clearly how that antithesis comes about in Dr. Unstead's mind. Prof. Lyde said that Dr. Unstead has arrived at his present synthetic state of mind after having been an ultra-analyst, and I would suggest that that idea is an important one from the point of view of geographical science. Dr. Unstead's suggestion of a synthetic method based upon small areas which are measured or classified or tabulated according to their dominant or differentiating characteristics by various individuals implies behind it a great deal of analytical work which must precede any synthesis which is made ; and the illustration which Prof. Lyde gave points to a weakness in the suggestion of this paper. The paper itself sets up, I think, an attempt at a scientific ideal, and, if I may say so, Prof. Lyde's opposition sets up a different ideal—an ideal of personality. Scientific ideal is impersonal. The "Prof. Lyde ideal" is personal. I am sure you will all agree that Prof. Lyde can teach his pupils, and write his books, and discuss lank and woolly-haired people ; and other geographers would treat those matters as supremely of no importance. If that is so, from the scientific point of view probably both of them are wrong. From the scientific standpoint it becomes a matter of importance whether the suggested method of Dr. Unstead or the older analysis is more important. It has been a weakness in geographical papers that the writer of the paper does not always provide a clear-cut idea as to the sources on which he bases his results. That is illustrated in Dr. Unstead's paper by his criticism of the four maps. He does not always seem to know how the author of the map arrived at his results. It is therefore quite possible that Dr. Unstead is going too far in attributing to those maps a greater degree of importance than they appear to bear. It is undoubtedly true that they are suggestive, and, as results of the analytic method, are probably quite useful. The difficulty is that a similar method has not been applied to other departments of geography. There has been no attempt to cover other topics in the same way. You have your so-called "natural regions" where the emphasis is upon the physical elements of Nature, but you have not had the "human regions" analyzed in quite the same way. If that had been done it would then be quite possible to synthesize the world.

Mr. E. J. ORFORD : There are several points which have occurred to me. In the first place most people are agreed, I think, that it is necessary we should

divide the world up into regions ; and, secondly, that the present system, based on the maps which Dr. Unstead has shown us, is not the ideal classification. From my point of view the great object in dividing the world up is in order to be able to teach the various parts more easily. If we talk in school or at lectures about the Amazon Basin and discuss that very fully, and then go to the Congo Basin, there is a very great saving of time in dealing with this second region. Might I say with regard to "natural regions" on Dr. Herbertson's map that two of those "natural regions" are compared in the current number of the *Geographical Journal* ? One is the Titicaca and the other the Sang-po region. The author points out that these two regions from the point of view of "natural regions" are exactly similar, and yet while one is a practically uncivilized country, the other is almost civilized, its civilized condition being due to the accessibility that Dr. Unstead spoke of in his paper. With regard to the elements that we might consider in building up these regions I would like to suggest such combinations as Lancashire, Cheshire, and Wales. In Lancashire we have coal and a manufacturing country : in Cheshire an agricultural country interdependent with Lancashire. Connected with those there is a Welsh highland. In Belgium we have a manufacturing region, interdependent with that an agricultural region, and again a highland region. In Germany, too, we have the industrial region ; the coal region ; the agricultural portion of the country ; and then the Rhine highlands. There must be some common underlying reason for these resemblances, and I think that a region which shows some such combination as do these portions of three separate countries might form one, at any rate, of the geographical regions to which inquiry might be directed.

Dr. UNSTEAD: I may be able to clear up one or two matters, and I will take them in the order in which they were presented to us. Dr. Evans suggested at the end of his contribution to the discussion that he doubted whether it would be found that large areas could be dealt with as units when the small areas had been put together; that is, whether one would get any satisfactory large regions which could be described in terms that would apply to a good deal of their area ; secondly, whether any definite world arrangement of the regions would come out. I think those are two very important questions for geographical science to determine, and I should be glad if the world could be divided up in the method I suggested if only to see whether the world is, or is not, capable of being divided up into large areas, and also whether there is any great world arrangement of regions. The present method of dividing natural regions assumes both questions, and whether those assumptions are well based might quite well be investigated. I should like to thank Prof. Lyde for his very kind remarks, though I am not sure that at all points I recognize his account of my scientific evolution. Moreover, I think he suggested that my present position is that the human element must be taken as predominant everywhere, but this is not quite my view. I think the human element should come very largely to the front, and in certain regions should be considered as predominant, but not in other parts, for in certain cases the physical conditions are predominant and would determine the delimitation of the region. I think I must make it clear that when I said in the paper that the older divisions did not consider human affairs, I was only referring to this matter of the division of the world into regions. I am far from wishing to minimize the importance of the work of Prof. Lyde and others, but so far as I know his school has not attempted to make a map of the world. May I make clear to Mr. Roxby that I do not wish to supersede the natural regions of Prof. Herbertson or others ? I suggest that in addition to those there should be this new method of determining and delimiting regions. I think with him that

the natural regions as well as these broader geographical regions are required. In regard to the analysis of causes, he suggested you might study maps showing the physical regions to see how far accessibility or other factors have affected the differences between their developments. I quite agree, and I believe maps made on the plan I suggest would help in that problem; these maps showing the actual conditions might be compared with those showing the physical environments. I am not sure I agree with Mr. Wallis when he says that the small regions must be dealt with by analytic examination. They must be dealt with by means of very careful, almost minute work, but not necessarily and exclusively analysis. It is not necessary in each region to analyze all the temperature conditions by themselves, and all the rainfall conditions by themselves, but rather to find the combined working out of these things. Mr. Orford has mentioned that he experienced a difficulty in using the present methods of natural regions in teaching. It is because I had experienced the same difficulty that I was led to this other method. If in elementary teaching one wishes to deal with a certain part of the world, say, South America, and to teach what the region is like, one might first teach the home country and then use a map such as one of these, which would show that the extreme south-west of South America comes into the same group; if one then inferred that that region is in most respects like our own region, I think one would give the pupils more wrong ideas than right. So if the method of Prof. Herbertson or others of dividing up the world into regions is to be applied in teaching, we must not have, I think, purely physical regions, but more completely geographical regions. I think Mr. Roxby may see from this example more clearly what I aim at. I am getting these broader divisions only as one means of geographical expression, and I hope they may be of service in teaching. I am pleading, indeed, for an addition to the present methods, and believe that only by combined, careful, and very detailed work can results of any value be obtained.

The PRESIDENT: As far as I have been able to follow the valuable discussion between experts in geographical teaching we have just listened to, I think the main point Dr. Unstead has been putting before us is that he wishes to broaden the grounds on which we classify Regions—to introduce the human element to a greater extent. I have no doubt the course he recommends is one which will lead both teachers and students to interesting investigations and very useful results. It seems to me there are many ways open of classification; one man will follow one method and one another, and they may be all found more or less suggestive and useful. The geographer is in the position of a man who has a store of pieces of marble and can arrange his mosaic in many different ways, each of which will produce a valuable result. It may be arguable whether Dr. Unstead's way is the best, or whether it is only one of many good ways. Of one thing I feel sure, that whenever he and Prof. Lyde are both here we shall have stimulating discussions and interested audiences. It only remains for me now to offer your thanks to Dr. Unstead for his paper, and to express our gratitude to the other gentlemen who have contributed to this discussion in so able a manner.

Mr. H. O. BECKIT sends the following communication: I wish first to say that I entertain a good deal of sympathy for some of Dr. Unstead's suggestions, notably for his preference for beginning work at the large-scale end, dealing with simple units of restricted extent, and proceeding cautiously to the larger complexes later. On the other hand, I believe that many among his audience

will have wished that the author of the paper had chosen to submit some specimens of his proposed divisions worked out in as much detail as may be. There is in my mind a lingering suspicion that the evident complexity of the methods suggested may turn out to be so great as to reduce their utility even to vanishing point. I confess that I do not fully appreciate—perhaps have not quite understood—his assignment of the several tasks of geographical analysis and synthesis. The former process is, of course, properly a means and not an end, but I think he undervalues the part it ought to play. I wish also that the paper had taken account of other attempts at world-division, some independent of, others derived from, Prof. Herbertson's well-known work, and may perhaps instance the German attempt of Dr. Banse, that to some extent follows lines of which Dr. Unstead evidently approves. As regards the usefulness of a division into natural regions, I imagine that one is involved, on the one hand, with the question whether the geographer's aim is the estimation of actual and often temporary, or of ultimate and permanent values, and, on the other, with the not less important practical problem how far cross-classifications, with their inevitable want of uniformity of criterion, both qualificative and quantitative, are really truthful and satisfying. In Prof. Herbertson's division, as Dr. Unstead suggests, the climatic factor was allowed predominant weight; I do not believe I am alone in setting a high value on the simplicity—I would add the significance—of the resulting classification. The difficulty of dealing, in any similar scheme, with the transition phenomena of borderlands appears to me to be inherent in all geographical treatment that has to cover the whole world.

THE UNEXPLORED AREAS OF CONTINENTAL CANADA.

Charles Camsell, Geological Survey of Canada.

SIGNS were not wanting previous to the outbreak of the great war that a new interest was arising in the exploration and development of the northern parts of the Dominion of Canada. This was perhaps most evident among men of the mining industry, whose interest has always been aroused by the stories told by returning explorers and travellers of the evidences of mineral wealth that occur here and there throughout that vast northern region. The building of several lines of railway through country that only a few years ago was absolutely unexplored has no doubt been the chief cause of this renewed interest. The new National Transcontinental and Grand Trunk Pacific Railway, the Hudson Bay Railway, and other railways into the Peace and Athabaska countries not only open up a great deal of new and unprospected country but make it easy for the prospector and explorer to get into the wider fields that lie to the north of these lines. The Hudson Bay Railway, for example, with its terminus at Port Nelson on Hudson Bay, traverses about 400 miles of country which is only now being prospected, besides making on its completion virtually the whole shore-line of Hudson Bay easily accessible to the energetic prospector for