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has changed through the agency of scientific man. If you come to think of it, what geography has been more concerned with than anything else, directly or indirectly, is distance. It is the knowledge of other places not at our actual door that we teach in geography, how to get there, what to find when we get there, and so forth. The greatest revolution that is being worked in human life is the elimination of distance, and this elimination is going on apace. It is entering into every phase of public and private life, and is changing it more and more. The most difficult and dangerous of all Imperial problems at this moment is the colour problem, and this has been entirely created by human agency, scientific agency, bringing the lands of the coloured and of the white men closer together. Year after year, because distance is being diminished, coming and going of men and of products is multiplying; steadily and surely the world is becoming one continent. This is what I want geographers to note and the peoples to learn. Geographers have recorded what the world is according to Nature. I want them to note and teach others to note how under an all-wise Providence it is being subdued, replenished, recast, and contracted by man.

THE PROVINCE OF THE GEOGRAPHER.¹

By R. N. RUDMOSE BROWN, D.Sc.

To return again to the well-worn theme of the definition and scope of geography would require many apologies. Almost every geographical writer has given his views on this subject, and it has been ably discussed in many papers in the pages of various geographical journals. The subject is a difficult one and one on which there is no unanimity of opinion, though, as Mr. G. G. Chisholm remarked in a recently published address (*S.G.M.*, vol. xxiv. p. 565), "The chief differences between rival schools of geographers arise from this, that some have insisted on taking man as determining the supreme aim of geographical studies . . . while others have sought to bring into independent prominence the study of the forms and physical conditions of the earth's surface. . . ." If in defining its scope we rigorously exclude, as should be done, any non-scientific treatment of the subject-matter of geography, there is no difficulty in recognising these two schools among teachers and writers. But we still find an occasional text-book—eliminating once for all the almost defunct catalogues of uncorrelated facts—in which one aspect of the subject, generally the physical, is well treated, while the other, which may be contrasted as the human side, resolves itself into mere descriptive matter. Now it would be better for the status of geography if the authors of such books would confine their attention to the first aspect and neglect the other entirely. Such a work would certainly be incomplete from our point of view: it would not be a true geography, yet,

¹ Lecture delivered to the classes in geography, University of Sheffield, during the session 1913-14.

after all, that is of small concern compared to the charge that half of geography is but discursive description, at best a literary subject without any scientific approach. Nothing could be more fatal to the aspirations of geography, define that science how you will. While the reconciliation of these two schools of geography is still far off, it is not difficult to see wherein the divergence of opinion arose. Before the birth of geography as a recognised science, the geologist, passing from his study of the rocks of the earth's crust, a static science, easily reached the kinetic aspect of his science; he tried to understand how the physical features, whose structure he had determined, had come into existence. He began to see the evolution of the surface features of the globe under the influence of hypogenic and epigenic agencies. Geology began to correlate physical phenomena and to see their joint action on the earth; it became in fact synthetic. Physical geology was born under the name of physical geography. The christening was unfortunate, for in those days geography was exactly what the derivation of the word suggests, a description of the earth, while the new subject was from the beginning strictly an interpretative one. However, the mistake was made, and physical geography, so called, is in consequence popularly looked on as within the province of the geographer. The development of the race is here comparable to that of the individual, insomuch as the most capable, perhaps the only really capable, exponent of that subject must be the geologist. The geologist, like every other scientist, has his definite outlook, which he is often unable and seldom willing to transgress. Consequently, though we find the geologist passing through physical geology to geography he stays his interpretation of nature on that plane. It is a perfectly intelligible outcome when the evolution of the subject is considered. Most geographers of this physical school reached their geography through a thorough steeping in geological science. Hence they see the world from a definite but purely physical standpoint and fail to give due recognition or prominence to non-physical or animate phenomena.

Likewise it is almost inevitable that the geographer who has reached his foothold in the science through economics, another synthetic science, should see in his subject one major aspect, the question of place relations, dwarfing all others. All praise to him if he can see the other approaches; but it would be improbable that he could and unlikely that his early formative training would not influence his viewpoint and his teaching, giving them a distinct bias towards economic geography. Now, when it is realised that the only roads of training open to the geographer in the past have been through these sciences, tributary to geography, the one dealing primarily with place, the other with man's activity, the divergent views of the scope of geography which we meet with on every side are more readily understood.

With one or other of the schools of geography we must take our stand, unless we try to combine the outlooks of several. In any case it is well to have some idea of the extent of our field of work before setting out, and this I feel is especially desirable this session in view of the institution of a department of geology in the university, for in some

quarters there seems to be a feeling that the work of these two departments, geography and geology, overlaps.

In this relation I may say at once that I do not propose to discuss that point of view which looks upon geography as purely a physical science. That, as I have already pointed out, is a mistaken application of the term, and at all events is not one which I accept.

Now geography is not one of the fundamental sciences. Derivative in itself, its own outlook on nature is built on a synthesis of other sciences which in their turn are derivative, geology, meteorology, biology, anthropology and economics. It must rank, therefore, on the plane of sociology or of the science of human history with its roots lying deep and ramifying widely in the fundamental physical sciences. It is a kinetic science dealing with groups in the present. Bearing in mind that formula, simple but pregnant with suggestion, which Professor Patrick Geddes¹ employed to illustrate the scope of geography:—

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we can with clearness arrive at an understanding not only of what geography really is but also of the varied interpretations that have been placed on its scope.

In a general way one may say that the subject matter of these three categories is dealt with by the sciences of geology, economics and ethnology. Each of these is confined to a definite standpoint from which nature is viewed. For long, progress in these and other sciences, notably the biological ones, was along lines of increasing, and so diverging analysis, and hence subdivisions arose. Too often the students of these divergent lines of research were out of sympathy with one another's outlook. In the long chase for the atom the whole was forgotten and knowledge accumulated facts but progressed little in interpretation. It is only within the last half century that scientific research has shown another tendency. Instead of proceeding from the whole with further and further analysis to the smaller and smaller part till the atom and protoplasm are reached, and even beyond, speculation is rife and some firm ground has been attained; in place of analysis an upward tendency appeared and science began to build again, the long-divergent lines met, and new interpretations were born of the fresh outlooks. Thus morphology and physiology joined issues in the new science of biology, that is, biology in its literal sense as the science of life. So also did the outlooks of geologist, economist and ethnologist widen in the course of time. Along certain lines geology widens its scope to physiography, ethnology gives rise to anthropology, and economics broadens its basis. The physical

¹ To Professor Geddes I am indebted for many of the ideas and some of their applications in the present paper, but I make no apology for the free employment of the stimulating thoughts of one whom I must always recognise as my greatest teacher. No one who has come under his inspiring influence can estimate what he owes to Professor Geddes, as his scores of pupils throughout the world and in all branches of work readily testify; yet I cannot but express the regret that he has not written more in geography so that he might reach a wider audience and let those of us who have experienced it have ever before us the stimulus of his interpretative insight.

and animate lines of research found common ground in the study of distributions, while from the mingled outlooks of physiographer, economist and anthropologist was born that view which, broadly speaking, is the geographer's.

The study of distribution is to some geographers the province of their science. Geography has indeed been defined as the science of distributions and their interrelations. There is no denying that there is much to be said for that view, except that it does not sufficiently emphasise the human aspect of the science. In fact our study, without any loss to ourselves, might crystallise at any viewpoint in the geographical synthesis, since at each there is much to learn and more that awaits interpretation. However, to my mind the geographer has a further ideal than this, and one that he must always keep in view. The study of the physical and animate distributions must lead to the study of the relations of man to his environment, and so reach the standpoint of the anthropogeographer, or, in less clumsy terminology, the human geographer. That is the culminating aspect of the science as it is recognised by fully half the world's geographers. And I would not have you regard it as a branch of geography, but rather as the ultimate aim to which all our studies lead. To understand man's movements and activities, his life and thought, as his environment determines them and in his reaction on that environment—that is the end of the geographer's studies. To borrow a term from biology, we might speak of the study of the bionomics of man as the task of the geographer, provided always that we remember the important part which man's actions play in modifying his physical and animate surroundings. But while insisting on that point it is very necessary to remember that there is no royal road to the desired goal: the individual must recapitulate in large measure the steps which his race have taken, and in studying our science we must tread again the paths which lead to its culmination. It is true that we can shorten the course without material disadvantage, but we must at least pass through some training in geology, meteorology, oceanography and anthropology and, if possible, economics and biology too, to the sciences of distribution such as climatology and demography, and thence to geography properly speaking. Only then are we fit to make a regional survey of any land and to pass onwards to interpret its human geography. That is the ideal course for the geographer to aim at; whether in our limited time we can accomplish all or not, is another matter which need not for the moment concern us. Let us hitch our wagon to a star and rest assured that in so doing we shall not be the losers.

From these comprehensive demands there might seem to be some truth in the accusation levelled against geographers of taking to themselves most aspects of knowledge and relegating others to a subordinate position. While that, of course, is rather a caricature of geographical enthusiasm it must be admitted that there is a germ of truth in it. Yet after all it is not only the geographer who is to blame for this.

The geographer is expected to have more than a superficial acquaintance with most subjects and to be deeply versed in many. Tack the title geography on to any subject relating to man or the surface of the

globe, and the unfortunate geographer is expected to be ready to expound it. Any aspect of knowledge is supposed thus to become a part of geographical study. Call astronomy astronomical geography and the geographer is at once expected to be versed in the relationships of bodies in space to one another: yet that is not geography, nor, to be precise, is surveying. The economist demands that the geographer shall be a student of the principles of economics and shall discuss tariffs and bounties and other man-made institutions, but that is not really the business of the geographer. Then, to crown all, the geographer is looked to for that anomalous subject known as historical geography, which is neither one thing nor another, but as expounded in most text-books is more history than geography, because it simply describes the place where certain events occurred. The geographer is not omniscient, and he has his limitations like most other people.

Undoubtedly the higher aspects of geography would gain by being more in touch with history, and the student of history, might with value to his subject pay more consideration to the geographical determinism that has had much to do with shaping the destinies of nations and of individual men. It is only quite recently that historical atlases have provided maps showing physical features: the older ones contain merely topographical and political charts. In recent years there has been more than one appeal for a scientific treatment of history, and we have a conspicuous example of such treatment in Elisée Reclus' last work *L'Homme et la Terre*, or Vidal de la Blache's *Tableau de la Géographie de la France*, or Principal Adam Smith's *Historical Geography of the Holy Land*.

But the geographer in his treatment of history must beware lest his new-found exercise carries him beyond his depths. He must guard against the very pardonable tendency to interpret all human action in terms of physical environment. The geographical *milieu* cannot account for all: there is also a directive force in human affairs that springs from man and affects his environment. The old question, never soluble, of the conflict between determinism and free will is ever present to the geographer, and he must be on the alert to avoid exaggerating his side of the argument. "While it is the business of the geographer," says Professor Jean Brunhes, "to be aware to what extent natural surroundings are responsible for our earthly achievements, it is clear that their share is more or less called into existence by our own acts. The man is there and the flint is there: but it is the man who makes the spark fly."

The great master of geography, Elisée Reclus, has said that "la géographie n'est autre chose que l'histoire dans l'espace de même que l'histoire est la géographie dans le temps." No words of man can better express the sphere of the higher aspects of our subject than that graceful and illuminating aphorism. Man and place viewed in the dimension of space constitute geography: viewed in the dimensions of time the relationships form history. Geography, as Professor J. L. Myres says, "essays to discover what happens, where, and to explain why anything which happens, happens just *where* it does; and under what combination of circumstances it *does* happen just *there*."

It is of great importance beyond merely the demands of definition and orderly thought that we should understand the scope and limits of geography. The subject has suffered from much misrepresentation; on the one hand from those who know nothing of it and are either adherents of the pursuit of the older analytical and fundamental sciences or who take their ideas from the smatterings of topographical facts of their schooldays, and on the other hand from the too zealous but insufficiently instructed enthusiasts in the subject.

It is too often forgotten by students of the fundamental and concrete sciences, which long custom has taught them to look upon as the whole of science, that it is not subject matter, but method of approach which makes science. Professor J. Arthur Thomson has graphically expressed this in saying, "It is a vulgar error that science is anything by itself. To speak of 'going in for science' is like proposing to go in for breathing or good digestion." It is the method by which facts are considered, and not the facts themselves, which makes their study a science. The term science, when employed to refer to certain branches of knowledge, means that the subject matter is investigated by certain intellectual methods. There is thus no subject which cannot be treated scientifically, even the everyday affairs of life; and chemistry, physics and biology have no monopoly of science. Nor does the use of experimental methods in itself constitute the scientific approach to any subject, which can equally well be applied to facts of human life and can be employed to shed new light on geography, history and sociology.

Considerations affecting man and his activities have too long been considered outside the scope of such treatment and have suffered by introspective analysis and a too emotional and personal outlook. Geography differs from the older concrete sciences such as are generally taught in that it cannot bring its units into the laboratory and cannot employ experimental processes, and lastly, it is separated from those earlier branches of research in its essential outlook on man and his work. But because it treats of man there is no reason why it should be looked upon solely as one of the humanities and be included in the faculty of arts, since even apart from its scientific treatment it cannot be understood without some knowledge—and the more the better—of the tributary sciences. And though we must take care not to lose ourselves in this preliminary work, yet only a modicum of the subject can be really understood by students who have no acquaintance with it: they have to be asked to take too much in faith, and not come to it by intellectual processes.

While we must borrow facts from the tributary sciences for our geographical superstructure, that does not mean that our province is to investigate the facts of nature from the point of view of these tributary sciences. "It is just as absurd to assume," to quote Professor Herbertson, "that geologists, historians, economists and others are the special guardians and teachers of geography as to suppose that, because geographers have to learn something of geology, history, economics and other subjects, they are the proper persons to preserve and teach them." And yet how often are geologists, historians and economists in schools

and universities not only expected to teach geography but readily undertake the task, in ignorance of what geography is?

The question of the suitability of the climate of Algeria for European settlers is strictly a geographical one, but not so the analysis of the physics of that climate. I would go even further at the risk of being accused of geographical heresy, and say that the influence of the relief on the climate is outside the strict province of the geographer, that it is climatology or, in wider terms, physical geography, but inasmuch as it does not directly influence man is not geography. However, it must be admitted that an understanding of such a matter is quite necessary in a study of the geography of any land, and so as a matter of practice must be taught under that heading.

It would be mere quibbling to insist on such restrictions except for the purpose of definition. The walls cannot be constructed without sure foundations, and especially essential is this in the teaching of the subject where the danger of generalisations founded on an insecure basis of facts is a grave one imperilling the status of geography.

We have then to start with, on the one hand, the older and foundational sciences, and, on the other, descriptive accounts of lands and peoples. While both are useful, neither of them of course is geography, and the geographer must be on a double guard neither to trespass on other sciences nor to accept mere discursive description as satisfying his own. In works of travel, in guide-books, even in time-tables, is to be found much raw material, but not the finished product.

While pedantry, then, in its failure to understand geography, is doing its best to keep it out of the circle of the sciences and to deny its seriousness, educational authorities, with misguided enthusiasm, are often contriving, all unwillingly, to strangle it. Professor J. Arthur Thomson speaks of "the unthought-out objection which some ultra-conservative educationists bring against geography, that it is not a well-defined single science, but a combination of many sciences for a particular purpose." We may let pass that possible misconception of our subject implied by these words, and agree with Professor Thomson, who continues by saying, "The description is correct that geography is a circle cutting many other circles, but that is precisely its peculiar synthetic merit and virtue, that it expresses a unification or synthesis of complementary disciplines."

Among the best of school books in geography that recent demands have brought into existence there are three types: firstly, those few notable exceptions which are good and truly geographical; secondly, the many which can be dismissed as bad; and thirdly, the large proportion which, while often good and no doubt most educational, are not truly geographical at all. The old-fashioned naked lists of names have no doubt disappeared in their earlier form, but they still crop up now and again in a thin disguise. Words are used to veil the nakedness, but words do not of necessity make the facts of geographical value. But the third class of book, while admittedly educational, containing nature study and general elementary science, does injustice to geography. A

misnomer of that sort cannot but discredit our subject and strengthen the position of those who would deny it a place among advanced studies in the university.

So far, no doubt, I have not touched on any very controversial ground, unless it be that I have stood for that interpretation of geography which finds a wider acceptance in France than in this country. In British universities we have still too few distinct departments for geography; even if there is a separate lecturer, he is generally attached to the department of geology; often one lecturer undertakes both subjects. But ideas are slow to make headway in this ultra-conservative land, and geographers must be glad that at least a few universities have given the subject some recognition, of which Sheffield was one of the first. After all, there are still many examples of language and literature combined, of Latin and Greek, or of physics and chemistry, and so forth, so that a newer subject must be grateful, though far from satisfied, to find any niche in which to lodge.

But to save the face of geography amid much misunderstanding, academic no less than popular, I would plead that its limits should be more or less defined, and in so doing I would retract its grasp. The greed which he has for one reason or another displayed, has caused the real aim of the geographer to be lost sight of, and, what is worse, has done the subject no good. While practically every exponent of the subject has come to realise the lack of value in isolated facts, and sees that, to be looked on as geographical, the fact must be studied in its setting, opinion differs as to what chains of facts are geographical and what are not. Geography, as I have said, has been spoken of as the science of distributions, and if we add to these words "in their influence on man," I would not dispute that as indicating the general scope of the study. But if this chain of facts does not lead to facts relating to human activity, migration and distribution in space, then it is not part of the geographical synthesis. It may deal with man in his time relation and belong to history, or it may not deal with man at all, and belong to physical geology or geographical botany or zoology, for we need not deny the term geographical to certain aspects of a study other than our own. In fact, I would confine geography to what is now called human geography, keeping always in mind the reaction of man on his environment as well as the converse, and I would extend its boundaries only in the direction of social geography, which is a study scarcely touched so far, but one that must of a certainty follow. At the same time I am fully aware that circumstances will not permit this curtailment of the scope of the subject within the walls of most universities to-day. Not only are there too few departments, but what is of far more moment, they are understaffed, so that each department, with its limited resources, must inevitably widen the boundaries of its subject at the risk, and even with the intention, of overlapping the work of others. Were that not done students, with the limited number of subjects which they take, would stand more chance than they do at present of missing the inter-relationships of the different branches of study, and would be more prone to look upon them as separate and distinct from

one another, missing entirely the all important idea that they are but different aspects of knowledge as a whole.

Remembering these indications of the true province of geography, and bearing in mind the complexity of the synthesis built on the analysis of so many different orders of facts, I am in doubt how far geography can be looked on as a school subject. Not that I suggest the elimination of geographical teaching from the school syllabus. It is impossible to have any doubts as to its educational value, even if we base our opinion alone on the testimony of education authorities. If the standard of teaching may be judged from the best school books now available, and that is surely a fair enough criterion, one finds the correlation of facts well treated in many cases, but these facts are often simplified until they are far from the truth. Take, for instance, the familiar diagram of the terrestrial winds which figures in most text-books. At every school that is taught, but most of it has to be unlearnt later. Or take most of the geological notions, fundamental to the true understanding of any country. In most cases they are so far simplified that they cease to represent the actual state of matters at all. The same applies to the important question of vegetation, which is essential to an understanding of human activity. We read in almost any text-book that trees cease in a certain latitude because the climate is too cold, but that is not a scientific explanation. The true explanation of the limits of tree growth cannot be profitably given unless the student has some knowledge of plant physiology. Many similar instances could be cited.

I am not referring to the notorious mistakes that recur in text-book after text-book, such as the explanation of the monsoons in India, or the inadequate treatment of increased precipitation on mountains, and the numerous other fallacies which occur, especially in the treatment of climatic questions, for these appear only in the bad text-books, and though that category comprises many of the school books now available, future years will see these supplanted and replaced by good books, written by experts and not by amateurs.

This ultra-simplification of complicated issues is not desirable, to my mind, and though no doubt it can be largely obviated by good teachers—and will be, as these become more plentiful—yet, as a matter of practice, I find it no easy matter to disillusion students of their belief in the simplicity of certain physical processes or chains of events. Diagrams, unsupplemented by representations of actual facts, have to answer for much.

Moreover, to immature minds there is surely a great danger in wide generalisations regarding the controlling influence of physical factors on man. While the determinist attitude is eagerly grasped and can so easily be overdone, the reaction of man against geographical determinism is not so easily understood. In fact, geography, as I take it to be, is a secondary subject and cannot be grasped or profitably studied until some knowledge of the analytical sciences has been acquired. If its study is entered on without a thorough grounding in the fundamental sciences, the student cannot hope to reach sound geographical conclusions. These are

my reasons for doubting the desirability of pushing geography far as a school subject unless it be in the highest classes. But, as I have already pointed out, much of so-called school geography is really nature study, physiography or general elementary science, and as such is the best possible grounding a future student of geography could have; and if to this were added a considerable amount of vivid description of the peoples and countries of the world there could be no better preparation for the study of the real subject.

It is sometimes argued that the environmental influences acting on man are too complex and too involved to admit of analysis and estimation, and that in consequence the problems of the geographer are insoluble. There can be no denying the complexity of the material to be studied, but surely this is exactly why its study entails the most rigorous of scientific methods. That is what makes geography a subject for advanced and not elementary students, as I have already pointed out, but surely the difficulties of the problems that face the geographer do not warrant their abandonment. In fact, by very reason of this complexity, there is no study which to such an extent as geography frees the mind from narrowness.

There can, of course, be no finality in the conclusions of the geographer. The world is changing of itself and by our actions, and we are changing too. A given set of physical circumstances, even though they could remain unchanged from one generation to another, would affect man differently in those successive periods, because he himself had changed, and his value towards his conditions is not the same in the two generations. We can therefore only arrive at the nature of the relationships between man and his environment at a given time, and their tendencies and directions of change. I doubt how far the quantitative value of geographical controls can be estimated with any degree of precision. But this quantitative estimate is of the greatest importance. When the value of such interpretation is realised, the geographer's valuation and forecast will commend themselves to men of affairs and statesmen.

Lastly, I would say a word about the "practical geography" which figures so largely to-day in schools. Geographers should protest against this misuse of the term, which can only bring their subject into ridicule. This practical work consists in the reading, interpretation, and drawing of maps, the cartographical representation of statistics, and the use of simple survey instruments, while to these exercises are sometimes added others on the reading of meteorological instruments, the construction of sundials and problems in latitude and longitude. The whole miscellaneous category is falsely dignified with the name of practical geography. It is hardly necessary to point out that thermometers, sundials and other instruments of a like nature have nothing to do with geography, nor have questions of latitude and of time. There is left, then, the study of maps and the making of maps. The map is the notation of the geographer, and he must be as conversant with the use and interpretation of maps as every one should be with the value of words as vehicles of expression. Maps are the most self-explicit symbols that the geographer

can desire to represent his facts. But to learn to use the notation of the geographer is practical geography no more than to learn the alphabet is the study of literature, or to become conversant with the use of microscope and microtome is practical zoology. The workman has to learn how to handle his tools before he can employ them to advantage and turn out finished and creditable work. Still less is survey work geography, although a knowledge of survey instruments is often of great value to the geographer in the earlier stages of his work when he is concerned with the collection of facts before he classifies them and reads their meaning. There is no disputing that both these subjects are excellent for school work (even if some of the exercises are rather puerile) and can as well be learnt at school as later; in fact map-reading should be taught at the very commencement of geographical studies, but the title under which they pass is misleading and does no credit to geography. The geographer must protest against all tendencies to look upon his subject as a chaotic medley borrowed from other sciences. My insistence on this matter is more than a mere question of nomenclature: the point is an important one if geography is to gain its merited place among modern studies.

No doubt the popular usage of the word has had something to do with the poor estimate that geography too often gets as a university subject, for in its most favoured meaning it has long been employed for stories of exploration and tales of travel. While it would be useless, not to say absurd, to attempt an alteration in the common meaning of such a word, we can at least precise it for scientific study. "Geography and travel" are invariably associated in the layman's mind, and travel not necessarily even of the intelligent or discriminating order, provided adventures are frequent enough, or, in their absence, if the author can write of little or nothing in a graceful style. Travel and exploration certainly have their place in geography. They form part of the empirical stage of the subject during which data are being collected and classified for future use, and it is well that every geographer should recapitulate the stages of his subject and so have his wander years to begin with, and their occasional recurrence, in order that his mind may remain fresh and in touch with the actualities of his subject. But this travel need not of necessity take the form of pioneer exploration. Well-known lands have yet to be geographically explored in most cases. As Professor Brunhes, one of the most brilliant exponents of human geography of the day, has put it, "The plain truth is that the outstanding facts of geography at the present time are not the discoveries of the North Pole and of the South Pole. . . . Whatever may be the most heroic facts in the history of the world, the most important are events such as the realisation of the Suez and Panama canals." If these words are not misinterpreted to minimise the value of pioneer exploration, they represent entirely to my mind the geographical point of view. Exploration, pioneer or otherwise, can alone represent the practical side of geography. The geographer cannot bring his units into the laboratory and must perforce study them *in situ*. But exploration must not be judged by its adventurous side, fascinating though that may be to dwell

upon, and it must entail orderly observation of facts throughout if it is to be of geographical value.

To be equipped fully to study his subject the geographer must needs travel here and there to see different types of regions and get a first-hand acquaintance with them: to examine on a map and through the medium of other people's observations must be looked upon as a makeshift in place of an ideal, and one that can lead to satisfactory results only with exceptional minds. No doubt much of the geographer's knowledge must be acquired in this way, but nevertheless he must deplore the restrictions in his wanderings. Before he can hope to acquire any moderate degree of competence in research or exposition, he must see and examine at least certain types of land forms, experience certain types of climate, and live among certain formations of vegetation and their correlated types of human activity. The relation of man to his organic and inorganic setting can never be appreciated fully without some first-hand experience of varying conditions of environment. Otherwise the obvious facts will probably be lost sight of. Actual knowledge of and contact with the living world is essential for an understanding of the complexities of human interdependence with nature, and it alone can safeguard the geographer from the dangerous pitfalls of intellectual abstraction.

And that this travel should be beyond the centres of our complex civilisation is also important because geographical facts should first be looked for where they are most obvious, which is in primitive communities still in intimate relationship to their immediate environment. The bionomics of the Fuegian or the Eskimo, to take two cases, are among the simplest, but those of, say, the Highland crofter are much simpler than of the Buchan fishermen or the Yorkshire weaver or the peasant of the Midi.

Now it may be objected that these conditions for geographical training are out of reach of any but the favoured few. There is much truth in that, yet it cannot alter the realities of the case. And after all there is ample opportunity for geographical travel and research without going far afield. To see every formation that this country has to show and every type of scenery and landscape from the English Channel to the Orkneys and Shetlands and westward to the Atlantic coast of Ireland is not an unattainable ideal. And with the Mediterranean region close at hand on the one side, with its almost subtropical conditions and desert development, and the northern forests, Arctic tundras and polar wastes not beyond reach on the other, a geographer need not despair of getting a first-hand living acquaintance with his subject. At all events he must by every endeavour counteract the withering influence of too long a divorce from his materials which a lengthened study of maps and observations of others must inevitably bring about. The geographer must keep in touch with the material basis of his subject.

However, since few geographers have the opportunity of visiting the more distant parts of the world or of seeing more than a selection of its varied landscapes or type conditions, good descriptive work is of great value in bringing a living presentment of other lands to the student's

mind, just as zoological gardens or museums help in other sciences. And this is where the value of works of travel comes into our study, as well as many of the admirable pictures in the illustrated press and even in cinematograph theatres. They help us to visualise those landscapes and environments which we are unable to study first hand.

Of course practical work in travel and exploration by no means limits the scope of research; in fact it paves the way for research, but much research can and necessarily must be based on the field-observations of others.

There is perhaps no subject which more insistently presents its problems than geography. The shortest journey presents many, even if that journey is but a walk through the neighbourhood, while the newspaper fairly bristles with geographical questions. It is not difficult to keep alive one's geographical interests. The difficulty is rather to escape bewilderment among the multitude of problems that daily present themselves.

In this short lecture I have endeavoured to indicate the legitimate province of the geographer, feeling that it is incumbent on geographers not only to precise the scope of their outlook and concentrate on certain orders of problems, but also to escape the accusation of voracity which brings them into rivalry with their fellow-workers in other sciences. Geography must put its house in order, or it may involve itself in difficulties and bring on its head charges which it does not merit.

I am fully aware that the attitude I have been endeavouring to express does not meet with universal acceptance, but the more we discuss our province the sooner we shall find it. And in any case I have pointed out to you the lines on which I try to develop the department of geography in this university.

Treated by scientific methods and based on the more fundamental sciences, geography is yet in the nature of a link between subjects in the faculties of arts and of pure science, and it might be more so were it not for the exigencies of specialisation and of regulations for degrees, which limit the possible combination of subjects permitted to the student.

To conclude, need I remind you that the intellectual or rational aspect of an education is but one side, even if the most important in university training. Too strict adherence to impersonal intellectual analysis, too slavish devotion to the pure scientific method of correlating cause and effect may be almost as dangerous as its wholehearted neglect. No more can the charge be brought against science that it leaves no scope for imagination. The man of science has as much need for a wholesome leavening of imagination as the historian or the man of letters. We must guard against the danger of killing an emotional appreciation of nature, and while my aim in this department must be to bring you to an understanding of how the surface features of our globe came to be a fit dwelling-place for man and how the multiple phenomena of nature act and interact on one another and influence man and his activities, who in turn reacts upon them, my success would be one-sided and incomplete if I failed to deepen your feeling of the beauty of it all or was unsuccessful in awakening in you some sense of its wonder.