TOWARDS A NEW GEOGRAPHY

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WHATEVER shapely forms the new world of reconstruction will take no one is certain as yet. It will be well if we stand firm in the belief that what we must start from is not some blue print or paper scheme, but from where we are now. The way the nation thinks must be determined, to a large degree, by the way it is taught. An overhaul of our educational system, an examination of the validity of the principles and facts inculcated into the minds of young people, might be a valuable contribution by educationists to the new order democracy hopes to build.

It is with this idea in mind that this article takes up the question of geography as a subject learned and taught. Greek interest in the *oikumene* started off a long lineage of environmental study from Strabo to Bodin, Buckle, Ritter, Herbertson, Geddes and many others. The duality of the environmental concept-man and Nature has been constantly attracting philosophy and science. We are now some distance from Montesquieu, who explained the virtues of the English constitution by the vices of its climate; but determinism will out, and mole hills of causality become mountains of effect. Convention ties the geographers to the bed rock of physical elements, and their human geography is still too much a product of the soil.

In a chapter on the geographical factor in his "National Character", Prof. Ernest Barker, quoting in some degree from the work of Edouard Meyer, has shown some of the fallacies of determinism. It is man, he says, who arouses the dormant energy of natural resources and makes them geographical elements. Coal and iron had been in our soil for millennia before man used them and made them factors in our economic situation. Again, the sea was at our gate for countless ages before we became a maritime nation. Prof. Toynbee in his recent work gives full play to environmental forces in tracing the history of civilizations, and he finds psychological factors as potent as physical, and spiritual vitality as determinant as climate and soil. Febvre again goes so far as to say that it is human activity, not soil and situation, which governs the game. There is no 'law of islands' imposed on human society, only variety and difference. Michelet could say of Flanders, "it has been created so to speak in defiance of Nature. It is a product of human labour". All of which seems to imply that man is a geographical agent, and that if history, as Prof. Rait says, is largely what geography makes it, geography is no less the product of history. The environment of to-day is the sum of all our yesterdays.

It is true that our geographers of to-day allow more room to human initiative and will than of old, but they have a speciality to conserve, and they make strange claims for it. Now it is merely 'a point of view', now 'a synthesis'. As a way of looking at world phenomena the geographical aspect is possibly a necessity in particular cases, but that scarcely makes it a subject. The claim to be a synthetic study results from the method. If you collate data from all and sundry sources you must synthesize or suffer mental indigestion. The trouble is that in fact the

geographer has to select what is digestible, but a partial synthesis is not scientific. This may be illustrated by reference to that excellent little classic on "Modern Geography" by the late Dr. Marion Newbigin. It presents a sequence of the varied content of conventional geography. There are the physical aspects of natural landscape, the biogeography of plant and animal life, and the relations of these with human society and its activities. It presents a rational picture of man and Nature; but what concerns us now is that the relationships which in the synthetic view should be cardinal, are but fractional. The elements exist in themselves, and they get on very well without being related. Synthesis in fact is a deliberate and consciously applied process, not one which operates in virtue of the coincidence of distributions.

Again, we may say that the physical map is the foundation of regional analysis, that certain results follow from given terrestrial forms; but there is nothing inevitable in any particular set of circumstances, and differences in effect may be more striking and significant than identities. The result of generalizing as to relations from specific examples is analogous to seeing the wood without perceiving the trees. Climate and vegetation regions there may be; but the real interest and importance often lies in the differences in superficially identical distributions. Grasslands may look all alike on the vegetation map, but they are not so in reality. The transformation of the Argentine pampas by artificially sown grasses is not represented on most maps in current usage.

Geographers seem to spend an inordinate amount of time in the classification of phenomena, and the atomization of regions in particular seems to have reached to ridiculous lengths. The 'natural region', once so fundamental as the epitome of physical and human interactions, has become a wanton unloved by the many, though most are loath to abandon it. It would have been better perhaps to leave it in its original literal sense as a Nature-made region as distinct from the cultural region which bears the impress of human activity. At any rate, hunting down regions as an end in itself has gone far enough. At best they are just frameworks, and what really matters is what is built into them.

A word may be said here about what might be termed 'map idolatry'. The map has been the sheet anchor of the geographer. There is a curious belief that it is a basic element, and that everything begins and ends in a map. Now maps are often as beautiful as they are useful, but even the best of them is merely a symbolic representation of selected facts. They are built up of layered distributions which are necessarily incomplete. A map leaves out much more than it can ever contain, and a great deal has to be read into it before it can mean very much. In short it is an auxiliary, not a fundamental element. It is a mistake to suppose we can base a serious study on empirical documents. A map is to the geographer what the time-chart is to the historian, merely a convenient method of setting out a proportion of the facts, not an original source material, for it is already a synthesis.

If the geographer still clings to deterministic frameworks, it may be claimed that he has escaped from causality. It is true that a rather vague 'possibilism' of Gallic origin has been substituted—influences replace conditions. So far the change in emphasis has not produced any great revolution, and text-books and the man-in-the-street still argue causally on environment. Yet the dominance of man as a geographical agent is obvious. His intelligence, if not always his wisdom, is at work, and he has altered the face of Nature so much that a cultural has replaced the Nature-given pattern. Examples are abundant. Railway and road construction, airways and shipping lanes, irrigation, the transplanting of crops and resources, plant genetics, and so forth. The rape of the earth may be only one side of the story; but at least it is evidence of human energy and activity.

What emerges is that the whole traditional approach to geographical questions needs revision, in that conventional geography still assumes man as an effect and not as a cause. Since palæolithic times man has never left the terrestrial scene, and both Nature and man are dynamic forces, and in a general sense man has been historically the dominant partner.

Any human group and any area may be said to be affected by two elements. One is made up of the internal and local influences operating by direct contact, and the other comprises all those external agencies which may be local or world wide, and which may or may not be more potent than those native to a given group or area. In contemporary society the 'home geography' is more and more a reflection of wider impacts which are breaking down isolation and modifying local characteristics. This species of universal leavening is, of course, a slow process, no doubt desirably so, and the universal pattern is much less well defined than local regional features at the moment. Yet this, too, carries with it the implication that human forces and actions have wrought and are still working transformations which demand a new approach to geographic studies. If, as has been implied, man throughout history has modified the natural landscape and given it ever-changing influences, it follows that the geography of the past, apart from physical changes, must be largely the record of his activities. Here is the true historical-geography, and most of that has yet to be written. This evolutionary aspect of environment, changing in substance and in incidence, is a matter of history, a 'natural history', with its central theme the place of man, creative man, in the development of the natural world.

"Geography is about maps, history is about chaps", so the schoolboy is reported. Discussions about the relations of history and geography, the meaning of historical-geography, and so on, have been held frequently, but as yet the bridge between the two subjects is still to seek. The study of a border-line marginal area necessarily makes difficult the fixing of limits. Framed as is our academic practice within a group of 'subjects', there seems no place for the historian-geographer or the geographical-historian. He should be obviously a free agent, free to draw on historical and geographical matter with whatever emphasis truth seems to require. He should not have to argue the historical factor in geography or the geographical factor in history according as to whether he is in the historical or the geographical camp. In practice he has to live and must perforce line up with one or other of the recognized 'subjects'.

The divorce of man and the *oikumene* as subjects of study has resulted in the cleavage we now see. The pre-historians and the archaeologists at the moment seem to be most successful in the handling of the dual theme. Too much of what passes as historical-geography suffers by the separation of bones and flesh. The historian is too often content with an introductory chapter and ignores the fact that his 'stage' is there all the time, and the scenes change, while the geographer it might be said is too interested in the decking and stage 'props' to notice much difference in the actors. There is an aridity which results from the isolation of physical and material factors as subjects of study apart from their human setting. It is man who gives them the stature that they have.

The major function of geographical study is to delineate the features of the contemporary world, and while the present has its roots in a past, and is not intelligible without some reference to that past, there is a justifying substance in contemporaneity. Things happen somewhere now as well as then. When the servant girl in Mr. Coward's play asks "Where is Africa?" her query expresses very well our general attitude to strange places. For most people acquaintance with the world about us is embodied in a cartographical outline dimly recollected from schooldays, with some detail here and there perchance remembered, but no catholic knowledge of the living societies, modes of activity and organization which function inside the framework. Geography in general education covers that area of knowledge which is concerned with international questions, political and economic features, trade and communications, and the exploitation of resources. An understanding of the nature of an integrated world order, a society of elements separate and self-contained but forced into contacts and relationships—this seems an obvious need. The older latitudinarian treatment of political and economic geography might well be revived to offset our current practice of putting everything into the regional pot. Here again the difficulty is in determining what is specifically geographical and what is not, and the question arises also as to the desirability of separating out an aspect which may only have significance in its relation to more directive and active forces. What is wanted both in the regional analysis and in the broader studies on a world basis is, so to speak, less anatomy and more physiology, less of structures and more of functions. The world is a going concern and its mechanism is in motion, while we tend to regard it as if it were at rest.

'Human geography' was a term introduced to describe all the geographical elements which were not Nature-given. It admitted man as a factor in the equation, rather grudgingly perhaps. It is a long jump from this to the latest school of geographical philosophy, that of geopolitics. Swedish in origin, this geopolitical school has found its home in Nazi Germany. It thinks of blood and soil as destiny, and its main tenet is that State, race, and land must be regarded as an organic whole, as a metaphysical entity in which the citizens exist only in and for it, while at the same time it is more than the sum of the nationals who compose it. This spurious pseudo-science is in the Ratzel tradition, and we are right back at determinism again. It is the concept of *Lebensraum* which justifies the essential geographical basis of this ideology, for terrestrial expansion of living space is a concomitant of it. The best that

can be said of this warped and distorted philosophy is that man is given a more potent if not a higher place than in some other terrestrial philosophies.

The recent revival of mechanical conceptions of society are perhaps a reflexion of the instability and lack of conscious political purpose of a world society in which economic factors and modes of physical contact are establishing a new segregation of population, and in which time-distance has so largely replaced linear distance.

If there is any validity in these reflections on the present condition of geographical study, it becomes evident that some changes in principles and methods are called for. The restoration of man and his mind to their proper sphere as purposive and active elements rather than passive agents, is beginning to appear in some kindred sciences such as physics and

biology. Dr. Isaiah Bowman has written of the "timeless creative experiments" which man is participating in, and geography as one of many forces which are involved in it. Man appears in the world but is not altogether of it. As a tool using animal he gave expression to powers and forces not hitherto known to Nature, and if he remains still part of Nature he carries some evidences of spiritual resources which Nature may utilize, but she cannot endow him with them. Let the argument start from the spiritual ancestry of man rather than from his animal origins, put human will and aspiration and effort first, and the terrestrial domain second—it is after all underneath our feet if we stand up—and the old premises which have clamped us down so long must vanish, and maybe a new birth will be given to a most ancient part of knowledge.

MARINE ANIMAL OILS OF CANADA

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THE varied and abundant fauna of the rivers of Canada and especially of the Atlantic and Pacific Oceans on the eastern and western shores of the Dominion form an important section of its natural resources. Canadian salmon, pilchard and cod are well-established edible commodities, but it is perhaps less widely known that in recent years the Canadian production of fatty oils from the flesh, livers, or other specific parts of certain fish and marine mammals has greatly expanded, whilst the quality of the oils is generally of a high standard owing to the increasing use of plant and conditions of extraction in accordance with the results of modern research on the chemical and technical properties of marine animal oils.

Up to the present the fish oils which have been most largely produced in Canada are from pilchards, herring, salmon, cod and halibut. Pilchard and salmon oils are extracted in quantity on the Canadian Pacific coasts, herring oil mainly on the Pacific, but also on the Atlantic shores, whilst halibut is taken from both oceans, and cod mainly but not entirely from the Atlantic side. The total annual fish-oil production of British Columbia varies from 2.5 to 4 million gallons per year, of which pilchard oil usually provides 1.5–2.5 million gallons; the Canadian annual production of cod liver oil of all grades is usually more than 150,000 gallons, although this is only 25–35 per cent of the amount of this oil produced in Newfoundland. There are, however, oils from a large number of other species of fish—coalfish, rockfish, rays, grayfish, ratfish and others as well as the more familiar ling, hake, mackerel or haddock—from which fatty oils could be produced in quantity. Again, more than 500,000 gallons of whale oil are made annually from whales taken off British Columbia; nearly half this output is from sperm or toothed whales, the rest from the baleen whales; seal oil is obtained in less amount (50,000–70,000 gallons per year) on the Atlantic coasts, and porpoise and dolphin oils, although not in much demand, could be obtained in quantity since these members of the Delphinidae are plentiful off all the coasts of Canada.

Marine animal oils differ to quite a large extent in composition, although there are fundamental similarities in the kinds of fatty acids present in the form of glycerides or wax esters. Those of the cod or halibut liver, herring, salmon or baleen whale flesh, and many others are all comparatively similar, especially in containing major proportions of glycerides of highly unsaturated fatty acids with 20 or 22 carbon atoms in the molecule; but even in this group there are well-marked differences in the general proportions of the component fatty acids which seem to be mainly determined by species—perhaps also by dietary and other factors. Some of the other oils which have been mentioned differ more radically in chemical composition. Those of the sperm whales are largely wax esters and not esters of glycerol, the alcohols in combination with the mixture of fatty acids being largely cetyl, $C_{16}H_{33}(OH)$, and oleyl, $C_{18}H_{35}(OH)$. Ratfish liver oil seems to consist to a very large extent, not of glycerides, but of fatty acid esters of complex ethers of glycerol with a higher fatty alcohol. The Delphinidae oils contain large amounts of *iso*-valeric acid in conjunction with the more usual kind of higher fatty acids, in the form of mixed triglycerides. It is natural that such variation in composition should afford scope for a variety of technical uses.

Probably, however, the most interesting of the fish oils at present are those which are found to be exceptionally rich in the fat-soluble vitamins. Halibut liver oil and, still more, the visceral oil, are well known in this connexion, but this is by no means the only instance. The production of exceptionally vitamin-rich fish oils, which serve as a valuable source of vitamin-A concentrates for incorporation in edible fats, is one of the most important fish-oil industries to-day. Although unsuitable *per se* for margarine or soap manufacture (by reason of odour and of proneness to atmospheric oxidation), fish oils and, more particularly, baleen whale oils, are converted by hydrogenation into more stable fats of high quality. But a number of other uses have been found for these oils, some of which may be less familiar. In contrast to their nutritional values, fish oils and their soaps