A UNIT COURSE IN ECONOMIC GEOGRAPHY FOR THE HIGH SCHOOL.¹

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Three events loom large in the history of geography in America in the past century. One was the arrival in America seventy-two years ago of the Swiss geographer, Arnold Henry Guyot, who brought with him the wide horizon of the real geographer, the kindly human interest which is the geographer's greatest asset, and an inspiration for scientific analysis, hunting out the fundamental physical influences at work on life, and conditioning life at every turn.

A second event of great significance was the appointment in the early nineties of a committee of the N. E. A. consisting of Davis, King and Collie, who reported out the argument for the new American study of physiography.

The third event of moment was the publication in England, in 1889, of a volume on Commercial Geography by George G. Chisholm.

The work of Guyot gave scientific organization to geography. We had our science expressing itself in the formal divisions, mathematical, physical and political. And then the fascinating development of physical geography began, the liveliest and most broadening subject taught in the schools a generation ago.

Then came the specialists in geology, and transformed physical geography, a subject which had been throbbing with life interest, into a narrow, lifeless geometry of three dimensions, applied to land forms—a chapter in geology, and to a large extent renegade to geography.

Chisholm, however, chose an angle of the horizon packed with human interest, and strove, as Guyot had done, to find the fundamental physical factors, the geographic influences, at work in the broad field of commerce. And we in America borrowed his work bodily. He had made an octavo volume of about 700 pages, filled with detail. He dealt with the geographic influences at work; then he discussed all the important commodities of commerce; then he presented a study of all the commercial countries. Within two years Cyrus C. Adams brought out the first American text in commercial geography, and in a smaller format, in 500 pages, he went over the same ground as Chisholm, giving us conditions, commodities and countries—omitting nothing.

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This text of Adams was a godsend. It gave an opportunity for a host of earnest teachers to bring into the curriculum a subject with limitless possibilities of interest, applying the scientific method in the interpretation of everyday matters of industry and trade. Not that the text *gave* this interpretation. It gave masses of fact, and the teacher and student brought to bear whatever genius they may have had in making geographic interpretations. But the very mass of fact implied in 500 pages treating all commodities and all lands has proved a great handicap. Condensing all this material into so small a space, and rushing over it in a unit course, has of necessity reduced the work of the student to so rapid a scanning of many things as to leave small chance of getting fundamentals firmly planted in memory, or to achieve any particular ease of mind in the thinking out of causal relations. The success of the Adams text and the recognized value of this phase of geography as an element in education have produced in this country a string of texts: Redway, 1903; Trotter, 1903; MacFarlane, 1905; Gannett, Garrison, and Houston, 1905; Gregory, Keller and Bishop, 1910; Robinson, 1910; Brigham, 1911; J. Russell Smith, 1914; McFarlane, J. (University of Manchester), 1914 (?); Dryer, 1916; J. Russell Smith, 1917.

These texts all show a strong family resemblance. To the latest one of them the Chisholm features are plainly still with us. But the variations in emphasis, one from another, show a recognition of the difficulties we are discussing. MacFarlane (1905) gave himself some freedom in discussing certain crops and other commodities of vegetable origin, making that part of his composition less dry, less like a catalog of things. That was because he was first a botanist, and brought to his composition a mind full of the lore of plants, and with a lively interest in plant life. Keller and Bishop (1910) gave rein to the discussion of the human element, doing their part of their three-cornered text most suggestively. Robinson (1910) and Brigham (1911) began to amplify the discussion of certain crops, and other topics. While J. Russell Smith permitted himself pages enough to get quite away from the dry as dust textbook composition and make a discussion which is interesting reading even for the man in the street. But this freedom made a book too large and expensive for the audience he wished to serve, and the condensed version (1917) has with it still the great handicap of too large a field.

After many years of teaching in this special field of geography, and striving always to delimit the scope of the subject so that one may, by earnest effort, in the course of a lifetime acquire something akin to an "easy mind" in the subject, I have come to a positive conviction that our error has always been one of uncurbed ambition. We have been greedy in trying to do the whole world of things at once. We have been like the boy in the fable who reached into the jar and took so many nuts he could not remove his hand. In the slang of the countryside, "we have bit off more than we could chew."

Why not then face the difficulty boldly. Let us limit our scope to a field we can cover. Let us establish standards in subject matter and methods of presentation. Let us be brave enough to undertake only what can be covered thoroughly, with time enough to fix in the mind of the student the principles of geographic interpretation. If it shall turn out that more time in the curriculum must be given to geography, let us not worry; let us go to it, and demand the place in the curriculum the subject requires.

I would have in every high school at least three unit courses in geography: I. The Elements of Geography. II. Economic Geography. III. Commercial Countries.

In every junior high school the first of these courses, I. "The Elements of Geography," should be given. This course should give a general view of the physical factors at work upon mankind. This may well be a ground work upon which all later courses in geography and history may be based. It should be required of every student.

The second of the courses mentioned above, "Economic Geography," is the one of largest present interest, and is the part of the geographic horizon to which I wish to invite most careful attention at this time. Its proper place is in the senior high school. In economic geography I would discuss two groups of topics: A. The Commodities of Commerce. B. The Geography of Trade. This calls for a recognition of the entire list of geographic influences, acting as they may act, anywhere in the world, in the production and movement of a given commodity. This establishes a wide view of world relations, and gives a good preparation for the study, in the following course, of a country or a region, as an industrial, or commercial, or national unity. Let us set down here a more detailed outline of this important course:

II. Economic Geography.

A. The Chief Commodities of Commerce:

1. The products of the forest:
Lumber, rubber and other gums, naval stores, cork, drugs, etc.
2. Products of hunting and fishing.
3. The products of the grazing lands:
Wool, hides, meats.
4. Products of the farm, orchard, and garden:
The cereals: wheat, corn, rice, rye, oats, barley, etc.
Sugar cane, sugar beet, potatoes and other root crops.
Fruits of tropic and temperate lands.
Vegetables, and varied crops.
Dairy products, hides, wool, meat.
5. Products of mines, quarries, wells:
The mineral fuels: coal, petroleum, gas.
The metals: iron, copper, lead, zinc, mercury.
The precious metals: gold, silver, platinum, etc.
Building stones, cement, precious stones.
Clay products.
6. Products of factories:
Foods and beverages.
Textiles, leather goods, clothing.
Paper and other manufactures of wood.
Machinery and metal wares.
Chemical manufactures.

B. The Geography of Trade.

1. Advantage of position with reference to trade, e. g.:
Advantage of Western Europe, opposite Eastern America, and close by.
Advantage of Europe in trade with Africa and India.
Advantage of United States in Western South America, and the Orient, etc.
2. Development of great land routes of trade:
The great highways of Europe and Asia, of North America, etc.
3. The great ocean routes:
The highway of the North Atlantic, of the Mediterranean, of the Orient, of Panama, and the Great Circle Routes.
4. The organization of ocean commerce:
Tramp and liner.
Shipping trusts, government participation.
5. The development of market centers:
Great general, and transshipment points.
Markets of special commodities:
Wheat and cotton at Liverpool.
Wool, tea, diamonds, at London.
Coffee at New York.
Bananas at New Orleans, etc.

The scope outlined above is amply big for a unit course. There is no subject in the curriculum which offers a better opportunity than this course does, for training the logical faculty, or for widening the horizon of the student in matters of everyday interest in the world about him. It is a liberal education in itself.

As an illustration of the method of study, showing the thought-provoking possibilities of the subject, let us indicate the sub-topics in the study of one of the cereals, say:

Wheat:

1. Plant characters of wheat, and our knowledge of its origin.
2. Climate and soil required.
3. Types and qualities of wheat as related to climate and soil.
4. World's wheat producing areas, and reasons for location and importance.
5. Influence in production, of surface, labor conditions, use of machinery, transportation facilities, skill of the farmer.
6. Problems of milling, marketing, establishment of the world market center, and the method of making the price.
7. Wheat in international commerce and politics.
8. The problem of the wheat supply of the future.

In every stage of this discussion the teacher is on guard that the *geographic influences* are being discussed. The criterion of any point discussed must be as to whether it is, or has, a geographic influence. This discussion of wheat goes down to the roots of things for many influences at work in Britain and Germany, and in the United States of America and other newer, wheat producing lands. It calls for some knowledge of historical development in all the lands in the world whose people must buy wheat, or who have wheat to sell.

Or suppose we take the topic sugar, we should have:

Sugar:

1. Historical sketch of the rise of sugar.
2. Plant characters of cane.
3. Climate and soil required for cane.
4. World's producing areas, as related to climate, soil, labor, transportation and market facilities.
5. A survey of the farmer's problems—planting, cultivation, harvesting, preparation, marketing.
6. Historical sketch of the rise of the beet.
7. Changes in character of plant under domestication.
8. Soil and climate required.
9. Beet areas in Europe and America.
10. Rise of the beet in America.
11. Sugar refining, and marketing the final product; location of refineries.
12. Uses of sugar; their influence on commerce.
13. Output of sugar by the important producing regions.
14. Government interest in the sugar industry in Europe and America.
15. The future of the sugar supply.

Here again one must open the question of tropical versus temperate agriculture and labor conditions. Must look into the almost unbelievable complications, economic and geographic, following a settled government policy in Germany of fostering the production of beet sugar. Political relations between Britain and Germany, and between Britain and her colonies—as well as unsuspected economic influences in our American attitude toward “Imperialism.”

Or suppose the topic is the most important metal, iron, we must inquire as to:

Iron:

1. The qualities which make iron and steel valuable.
2. The significance of iron in the civilization of the race.
3. Chief iron producing regions of the world.
4. Methods of winning the ore: in Minnesota, in Sweden, in Spain, etc.
5. Problems in transportation of the ore—the question of limestone and coke.
6. The phosphorus question, and steel making processes.
7. Present rank of regions producing iron and steel: a geographic interpretation of their relative importance.
8. The price of steel since 1850, and the significance in industry and trade of cheap steel.
9. The trust control and the development of government interest in steel manufacture.
10. Estimates of the world's total stock of ore and the significance of the location of the ore bodies.

It may be observed that the study is avowedly economic, as well as geographic, and geographic and economic influences underlying industry, commerce and human welfare are sought in every stage of the study. This makes of the subject a fascinating field for both teacher and student, and it has the superlative advantage of continual growth, of eternal youth. It is quite unlike a paradigm, or a table of constants, calling for memory only. It calls for an alert mind, a mind that takes delight in searching out the causes which explain the intensely interesting and endlessly moving phenomena of the world about us.

Let us now mention the logical successor to the course in economic geography, a course which makes a somewhat careful geographic interpretation of the commerce of some of the leading commercial countries. Let's call it

III. Commercial Countries—a course which should come as late as possible in the senior high school.

The point of view is now avowedly regional. The unit is the country. And again we run the gamut of physical influences, acting now in a given region, and getting certain responses in industry, transportation, and the segregation and occupations of the people. Now all we have learned of the influences at work in the location and development of commodities may be used as material for clear thinking in the present status and stage of industrial development of a country. We shall find here an interest in a *people* and their place in the world.

There should be no attempt to discuss all countries. Important countries should be chosen and studied as to commercial development and possibilities.

We may begin with a statement of the rapid growth of world trade in recent decades, and take for our task the geographic interpretation of this marvelous development.

We shall want to know what leading countries have been most conspicuously active in this development, and in what particular lines of development, industrial and commercial, these nations have been conspicuous. We shall look for the trend of commerce in the leading commodities exported and imported through the decades, and be able to account for the changes in the rank of these commodities; for the dying out of some lines and the rise of new lines to a prominent position.

Then we must analyze the trade to show the international relations, the trend of trade through the decades with the countries of largest intercourse—and be able to find in the facts we deal with the reasons for these changes.

First of all the countries studied, should be our own. And we should compare it with some young tropical country, say Brazil. Then Britain, an old nation, might be studied in similar fashion and compared with the United States of America as a young nation, and with India as an old tropical nation. Germany in turn may be taken up and studied in contrast to Russia, and possibly with Argentina, to bring out the surprising contrasts. France and Australia, for contrasts of old and young, and with Japan and China for another phase of development of old countries, presenting phenomenal signs of rejuvenescence.

The opportunities for development in such a course are endless. It is a course as live and as recent as the evening paper. Though the principles of the subject may be rooted in the very nature of things, its data are in continual flux with the everyday changes in the weather, the changes of market conditions, and the continual shifting of international political relations.

For these reasons it is not an easy study to prepare in or to teach. The materials are all around us in every business we may look into. There is a continual incentive to follow developments in such periodicals as the *World's Work*, *The Nation's Business*, and the more technical trade magazines. Especially fortunate are we in our government, which in special monographs in many fields is publishing, at no cost to us, the finest material obtainable. The daily *Commerce Reports* are invaluable. The special reports of consuls and trade experts put the richest storehouses of material into our hands. Even the daily papers have grist for our mill, and just in proportion as we are properly educated the space devoted to scandal and gossip in the press will decrease.

No course has such a wealth of potential graphic material

waiting for it. Graphic statistics become eloquent. Maps of every sort have tremendous possibilities in presenting our subject matter. An atlas should be in every student's hand. Unfortunately, there is no atlas in existence that really meets our needs.

No subject could be more significantly aided by pictures. These three courses could with profit use a thousand typical pictures. As photographs, as lantern slides, best of all as stereographs, they may be made strongly to reinforce the text or class discussion. Even the "movies" occasionally, as it were by accident, give us valuable educational films. I fondly hope the time may come when such courses may be equipped with moving picture machines and libraries of films.

This entire subject, properly presented, is not merely three unit courses or three years of high school work. It is rather an inoculation of intellectual good health which will last through life. The reward of such a study is found in the exhilaration of a constantly widening horizon, and of a migration out of a provincial frame of mind into an atmosphere of serious, worthy cosmopolitan interests.

LABORATORY EFFICIENCY.

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In no occupation is there more need to heed the war-time exhortations of "prevent waste and lost motion" than in that of teaching. Of all teachers, the science teachers are likely to feel that they are the most efficient. Yet, laboratory methods may be as formal and "dead" as any others.

Laboratories are equipped with the idea of giving students real experience. Yet in many cases chemistry teaching at present is nothing more for the students than mental excursions radiating from the class textbook, rather than mental excursions from real basic facts. Few teachers outline a practical course in chemistry for their students. Chemistry is generally taken as it comes from a book rather than as it comes in life.

If laboratory work is to bring the results desired, namely: training in observation and reasoning, and stimulation of interest, it must be *initiated* in the laboratory. Perhaps the laboratory work does go better if the textbook is studied first. But the main reason for this is that most students will gladly