this, we should emphasize the part which the institute has played in the republic of education, we should remember that the majority of its graduates have spent their lives in the world of affairs and that there is no field of activity which they have not made their own. The mechanisms which they have invented; the structures which they have designed; the canals which they have dug; the railroads which they have constructed; the ships which they have launched; the mines which they have sunk; the ores which they have treated; the businesses which they have organized; the industries which they have directed—these, the final fruits of its endeavor, are subjects to which I can not do justice to-day. Emory, Gurley, Riddell, Thacher—figures inseparately associated with the development of exact standards of measurement and calculation! Do I need to remind you, the legatees of their success, of the services which they rendered to their generation? Murphy, Roberts—pioneers in design and manufacture, workers in iron, spanners of floods! Do I need to mention them? Boller, Buck, Cooper, Hodge, Macdonald, Roebling—a brilliant galaxy—craftsmen in steel, conquerors of chasms! Shall I remind you, the inheritors of their traditions, of the achievements which you have so faithfully emulated? Ferris, Shankland—intrepid experimenters in a new architecture! Menocal, Fuertes—explorers, linkers of seas! Evans, Kneass; Cassatt, Crocker; Roberts, Voorhees—trailbreakers and executives whose names are grooved across the continent! Babcock, Mallory; Hopkins, Morse—shapers of ships, masters of men! Pardee, Rothwell; Metcalf, Reeves; Cogswell, Wallace; Lewis, White—spoilers of earth, moulders of metal, generals of organization, conservers of humanity—with their careers I can not deal.

Thou hast sent us forth to labor,
Old Rensselaer.
We have wrought to win thy favor
Year after year.
Steel to wield and stone to shiver,
Sink the mine and span the river,
For thine honor toiling ever,
Old Rensselaer.

This is their story and this is yours—no bleak record of chill materialism but a single-minded devotion to the "common purposes of life" that men may find in them the essence of those higher purposes which are the goal of existence. Such is the ideal which Rensselaer, in every decade, has held before those to whom it has been the mother of learning; and this ideal, realized in the life of its sons, gathered here to do it homage, is not the least of the contributions which it has made to the civilization of America.

RAY PALMER BAKER

TRENDS IN MODERN GEOGRAPHY

GEOGRAPHY formerly was held to be the science which treats of the earth and its people. Considered in this broad sense the field included the subject-matter of many associated sciences, but with little or no correlation. The subject dealt with an infinitude of details; it was scarcely more than a scrap bag into which went a mass of unrelated material. Its methods were almost wholly descriptive; it lacked a unifying principle. Under these conditions it is no wonder that many people conceived the idea that geography was made up of the remains of various subjects and that little interest was manifested in it by the children who were burdened with a mass of facts and with the laborious, thought-deadening reproduction of maps from books.

A significant change has taken place in the scope and content of the subject of geography during the last two decades. For some years before the outbreak of the World War lecturers frequently spoke of the "new geography." The leaders of geographical thought recognized the shortcomings of descriptive geography, of fact geography and of place geography. Emphases were shifting to relational and interpretative geography. Its scope was becoming restricted and concentrated. The subject was defined as dealing with *the influence* of earth features and earth resources on the distribution, character and activities of life—plant, animal and human. This new delineation of the field emphasized the relation of earth features and earth resources to life. However, geographic topics were organized according to a standard outline: (1) Location, (2) area, (3) topography and soils, (4) climate, (5) life forms and (6) human activities. Each section, in most cases, was treated as a unit in itself, and as a result human relationships in the earlier chapters were few. No central theme pervaded these so-called geographic discussions. Moreover, in proceeding from the environment to life responses, geographers frequently assigned to environmental factors a determinant or controlling influence which they do not exert. The whole procedure was characterized by the synthetic rather than the analytic method. Furthermore, this definition called for the relation of the environment to all life, including in the field the subjects of plant and animal ecology. These fields are being developed or cultivated not by geographers but by biologists and zoologists, to whom they rightfully belong. The recognition of this situation and the insistent demands that geography be humanized have led to a clearer statement of the scope and content of the subject.

Geographers in increasing numbers define their subject as dealing solely with the mutual relations between man and his natural environment, physical

and biological. Thus defined, *geography is the science of human ecology.* According to this view, geography is not concerned with the origin and development of land forms, but with the *adjustment* of man to land forms as an element of the natural environment. In like manner, geography as human ecology would not necessitate an explanation of the causes of the different climates of the world, but would involve the distribution of the climatic types and their relations to man as an element of man's environment. Furthermore, geography would not deal with the relations of plants and animals to their physical environment, but with plants and animals as elements of the natural environment affecting men. It must be noted, however, that a knowledge of the principles of physiography, meteorology, climatology and plant and animal ecology are required for a successful portrayal and a clear interpretation of human activities in relation to the environmental features.

As *human ecology,* geography has an organizing concept, a unity otherwise lacking, a point of view unique among the sciences which deal with humanity and a field cultivated but little by any or all of the natural and social sciences. Thus, the subject affords a distinctive field and a controlling viewpoint by means of which its data may be organized with reference to the discovery and application of general truths or principles, the requisites of any science.

VIEWPOINTS AND METHODS OF TEACHING

In addition to evolution in the scope and content of geography, there has been distinct progress in the point of view and methods of teaching. The more significant changes involve (1) the broadening of our outlook from a local one to a world point of view, (2) the presentation of the subject according to natural units and geographic regions instead of political divisions, (3) the cultivation of the center of the field of the subject rather than the marginal portions, (4) the employment of terms better suited to express the relationship of environmental conditions to man, (5) the development of a body of geographic principles, (6) the adaptation of the subject-matter to the child's interest and needs, and (7) the recognition of the usefulness of geographic knowledge in trade and industry.

(1) In pre-war days the currents of trade that supplied our daily needs ran over the earth and the seas so smoothly that we had little interest in their sources or their courses. We experienced no empty sugar bowls, ate no war bread and felt no coal rationing and heatless days. The Great War changed this old order of things. It focused the attention of the whole nation on the war-gripped sections of Europe, on the Far East and even on the remote islands of the Pacific. Our horizon was extended from the borders of a single continent to the distant lands and seas of the earth. It encompassed the needs, struggles and aspirations of the masses of the world. Moreover, the peace deliberations following the war and political moves by various powers since have continued to focus our attention on the factors underlying international relationships and on the problems of new nations carved out of old ones almost overnight. An international viewpoint will continue with us because the United States has come to occupy a central position in the world. This view has permeated the field of geography and will continue to do so in a greater degree. The spirit of the "new geography" is to reach out to all types of people, to study them sympathetically in their natural environment for the purpose of solving their problems and interpreting their ideals and aims in international trade and politics. In addition to this spirit which permeates all grade work, an intensive study of the United States and its international relations is made during the last half of the eighth year's work in many schools.

(2) Years ago, in the study of geography, each state or larger political unit was treated in a detailed manner. Consequently, many facts common to one or more units were repeated for each, without any definite correlation. In contrast to this, the new geography is being taught by increasing numbers by *natural regions* as delineated by some exponents of the subject and by *geographic regions* as set forth by others, thus reducing the repetition of facts and bringing about a scientific organization of the materials and principles of the science. The study of the subject by geographic regions marks a distinct advance, for it is by this method that we can best evolve general truths and principles and apply them, for regional investigations involve facts and principles from all the divisions and subdivisions of systematic geography.

(3) Geography is closely related to history, economics and sociology on the one hand, and to physiography, geology and climatology on the other, yet it has a distinctive field of its own. History, economics and sociology deal with the complex aspects of human activity; physiography, geology and climatology treat of portions of the earth, while geography *is concerned with the relation of human activities to the environment.* It is a science of relationships. From this point of view, it is difficult to determine where we pass from geography into the social sciences; boundaries are indefinite zones and never lines. Therefore, the tendency in productive research is to cultivate the center of the field and to relinquish the marginal portions to the social sciences on the one hand or to natural sciences on the other.

(4) In the development of the subject of geography certain unfortunate terms, as "geographic control," geographic determinant, etc., have been employed by the lay teacher. The tendency among teachers to use language implying that geography in some way acts as a compelling force has caused critics to belittle the teaching of geography. The use of such terms should be avoided; better words express the meaning desired. Nature does not control man; she offers him a choice. Man adapts or adjusts his activities to geographic conditions or responds to the elements of the natural environment. It is wise for geographers to view man's relation to his environment from the standpoint of adjustment to environment rather than from that of environmental influence.

(5) There is a growing tendency in the teaching and in the study of geography to develop a number of clear-cut, general truths or geographic principles. Around these the facts of man's environment and his adjustments in the "new geography" are being organized. The study of geographic facts in order to discover and apply principles, the requisite of any science, offers interesting tasks and affords possibilities for pupils from the lower grades to the university. It promotes industry in the student and helps him to classify his geographic knowledge.

(6) Probably in no other line has progress in the field of the "new geography" been more significant and successful than in the adaptation of the subject to the needs and interests of the child. Home geography occupies a more important place in the school program. Through this medium the children are led to understand the principles of the relation of their local environment to their activities, and with this, as a base, they study, in a sympathetic manner, the environments and activities of distant peoples. They learn what people eat, wear and do, and why they do these things. The subject in the grades increases in difficulty from the home geography to the eighth grade. The new geography in the upper grades in contrast to the old in many cases is not a repetition of the preceding year's work, but a new, live subject appealing to the best efforts of the children.

(7) Modern geography is a new science, and many teachers and most college students know little of its content. They do not realize that the causal element now stressed so strongly has given it a content which has placed geography in the university curriculum and added greatly to its practical value. Business education is taking a new stride in America, and some of our best trained geographers are engaged in fitting men for the larger sphere of commerce. The government now recognizes as never before the value of trained geographers in this field. Map-publishing houses are employing skilled geographers. Large corporations, commission houses and banks recognize the necessity of having trained geographers on their staffs; they have established their own school in order to give adequate training to men in whose charge they wish to place their foreign branches. Skilled geographers are needed to accompany scientific exploring expeditions, and with the increasing need of tropical products the demand will grow. The student who prepares to teach university geography is taking advantage of one of the best opportunities in the entire pedagogical field, and rapid promotion is certain for him if he deserves it. And last, but not least, there is a wonderful service which all teachers of this science can render to humanity by giving our boys and girls through environmental relationships a sympathetic appreciation of why one's neighbor, near or remote, is what he is, and by training them in some of the fundamentals which will make them intelligent and valuable citizens of a great democracy.

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SCIENTIFIC EVENTS

THE AMERICAN ASSOCIATION'S COMMITTEE ON THE PLACE OF SCIENCE IN EDUCATION

THE American Association for the Advancement of Science is undertaking to carry out a study on the proper place of science subjects in general education, with special reference to American school curricula and to social objectives. This project was authorized by the association council at the third Cincinnati meeting, in December, 1923, and a special committee was authorized to take charge of this important investigation.

Purpose and Support

The committee wishes to formulate an adequately descriptive statement of the purposes and plans now in use in American education and of aims and improvements that seem worthy of serious consideration. This movement has originated from the thought that the unprecedented recent development of the sciences and the rapid introduction of scientific knowledge and scientific thinking into everyday life make it highly desirable that such a statement be formulated, to hasten the spread of a general understanding of the functions of science in modern education. The committee is charged with the responsibility of investigating this whole question and reporting on it at an early time. While the results of this study may not be as definite and as thoroughly based on scientific records, observation and experimentation as would be