of conveying misleading ideas. We had a simple and highly instructive arrangement devised by Mr. Francis Galton, to whose initiation I may say the whole of this geographical movement is due, to show the relative sizes of sun and earth and moon. We supposed the distance between sun and earth to be reduced to 56 feet. On a wall we fixed a disk of cardboard colored yellow, 6 inches in diameter, for the sun. On a table 56 feet away we had a pellet of wax, .056 of an inch in diameter, suspended by a hair to the end of a splinter of wood 1.68 inches in diameter, to represent the earth. At the other end was another pellet, .015 of an inch in diameter, to represent the moon. This arrangement costs nothing, and can be adapted to any building. In fact, there is ample room for a variety of demonstration of the kind in connection with geographical teaching, as well as of experiments to illustrate geographical facts. Thus the crumpling of the earth's crust might be illustrated by bringing lateral pressure to bear on a plastic material; and already in a few English schools sand and clay are used to build up the physical features of a country or region. The magic lantern also may be used with great effect to produce large-scale maps on the screen, to exhibit special features, and to bring pictures of typical landscapes before the eyes of the pupils. One of the most interesting and novel of our exhibits consisted of several series of geographical pictures from Germany; that is, pictures whose special object is to show the characteristic features of the various regions of the globe, and the typical forms assumed by the leading classes of phenomena with which geography deals. The best of these pictures is the series of about thirty oleographs published by Holzel of Vienna, and which are now coming into use in this country. Above all things, such pictures must be accurate, and therefore good large-scale photographs are often to be preferred, — such photographs, for example, as are produced by the United States surveys and by private enterprise, — of some of the most striking features in American scenery. For teaching purposes, however, it should be remembered that it is not extraordinary features that are desired, but typical aspects of the earth's surface, — ordinary mountain forms, a prairie, a delta, a tundra, a steppe region, a coral island, a sandy desert, and so on.

The text-books and altases which were exhibited were analogous to the wall-maps. The English text-books were mostly too large, and too crowded with names and tables, and made no attempt whatever to show the intimate relation between all sections of geography, and the influence which man's geographical surroundings has upon his social and political development. The German text-books are comparatively small; contain mostly heads of subjects, the filling-up being left to the teacher, who has generally had a thorough training in geography at the university or the normal school. I am sorry I cannot speak very highly of American text-books. As a rule, the American text-book is combined with an atlas and picture-book, — an arrangement which I do not consider a happy one. Neither text, nor maps, nor pictures, are any better shown than we have on this side; and even with Guyot's geographical manuals we were much disappointed.

Altogether the collection of geographical appliances has proved most suggestive and instructive. Reform has already begun. Many schools are now using Kiepert's wall-maps, and publishers are making haste here to supply the glaring want of good text-books, atlases, and wall-maps. Teachers have been stirred up to recognize existing deficiencies, as well as the undreamt of capabilities of geography when treated liberally and intelligently. They see that in geography, as in mathematics, a special training is required if it is to be taught effectually. The society appeals to the elementary teacher by offering a series of prizes on the basis of the examinations of the training-college students, and many of the school boards are instituting radical improvements in their geographical appliances. Out of the collection, which is once more in London, we are forming a small typical collection for exhibition to any who may wish to know what are the best things in any department. This collection is of course very small to begin with; but we hope, that, as improvements are introduced, we may be able to extend it.

Altogether I hope it may be seen from these notes that the Geographical Society has at last succeeded in raising geography from the slough in which it has lain so long in this country; has not only initiated great improvements in the teaching of the subject, and obtained its recognition at our great universities, but has shown that it is eminently capable of becoming a fruitful and instructive medium of research, worthy of taking its place alongside of other departments of scientific investigation. J. SCOTT KELTIE.

THE STUDY OF GEOGRAPHY.

THE *Ausland* of May 9 contains an extract of A. Stauber's essay on the promotion of the study of geography, which carried the prize offered by the King of Belgium. The author discusses the methods which ought to be applied in primary teaching, in high-schools, and in colleges. In the primary grade, the method is that of object-teaching. First, the geography of the child's own country is taught, beginning with the nearest surroundings, the school-house or home, the village or city, the county, and so on. The close connection between natural history and geography must be kept in mind by the teacher, who is warned against overburdening the children's brains with names and dates. The drawing of maps and the use of charts are recommended; but Stauber remarks justly that not too much weight should be laid on the drawing of maps, which must only be practised as a means to impress the configuration of the earth's surface more effectively on the child's mind. In the upper classes, an atlas ought to be used, but it is important to select maps which contain the proper amount of material and show the geographical features of the country clearly and simply. After the native country has been thoroughly studied, the geography of the native continent, and later on that of the other continents, is taught.

In high-schools and colleges the analytic method gradually takes the place of the synthetic. The reading of travels is recommended as a means of making the study more attractive and of preventing its becoming a mere memorizing. The connection between natural history and geography must always be emphasized, and characteristic objects ought always to be shown. But, in order to be able to do this kind of work, teachers ought to be thoroughly conversant with the problems of geography. This can only be accomplished by the study of geography at a university. Therefore the establishment of professorships of geography is demanded. At the present time there are seventy-five such professorships at European universities. In Prussia, every university has its professor of geography; at other German universities there are lecturers. In England, geography will be taught in Oxford and Cambridge, as lecturers were appointed a short time ago. In Belgium, Greece, Portugal, Sweden, and in the United States, the science of geography is not taught by specialists, but, when it is taught at all, only incidentally.

Among the manuscripts which received honorable mention is an American one by Prof. Richard Owen of New Harmony, Ind. We are indebted to the author for a statement of his proposals.

The first principles of his method of teaching are, that he only makes one step at a time from the known to the unknown, and that the eye instructs more than the ear, and that consequently, whenever practicable, the object that is being described, or a good representation of it, should be shown. As a consequence of his first principle, he presents only one thing at a time. For instance, he uses a separate outline map, 1st, for the general outlines of the continents; 2d, for the same with mountains only; 3d, for the same with rivers added; 4th, for all these with political divisions. He depends chiefly upon numerous plastic relief-maps as a system of instruction, and shows that these can be made very economically, and that children of from ten to twelve years of age take great interest in their construction. He begins his course in the same way as Stauber, by having the student study the geography of his home, and by having him make the plan and model of the school-house, or of his own house and garden, by measurement and according to a definite scale. Then he proceeds to teaching the topography of his town, county, state, and finally of the United States.

Using the globe, he begins to give his pupils an idea of the earth being nearly a sphere, by various demonstrations, and by calling in a traveller who testifies that he returned to the place of beginning of his travels by steadily travelling west, and thus teaches the elements of mathematical geography. In teaching, he uses numerous maps and diagrams, showing the phenomena of physical geography, and models to explain the forms of the earth's surface.