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THE EXHIBITION OF APPLIANCES USED IN GEOGRAPHICAL EDUCATION.

LECTURES AND DISCUSSIONS.

LECTURE I. December 15th, 1885.—The Right Hon. Lord ABERDARE
in the Chair.

On the Aims and Methods of Geographical Education.

By E. G. RAVENSTEIN.

Previous to the lecture,

The CHAIRMAN said the meeting was held for the practical purpose of seeing by what methods education in geography could be introduced into the schools of England. It was not enough for those present to be persuaded in themselves that a knowledge of geography was necessary to a liberal education: what they wanted, as practical men, was to discover how it could be grafted into the teaching at elementary, intermediate, and higher schools. The Royal Geographical Society had for a long time felt it its duty to encourage the teaching of geography, but hitherto with very slight and partial success. It had already incurred considerable expense, and, with a fair hope of succeeding, it would be inclined to go still further in that direction. He hoped that many of those present would make practical suggestions as to the manner in which the teaching of geography could be extended in England.

Mr. RAVENSTEIN in the course of his lecture* said that while many maintained that the teaching of geography had no educational value, the Council of the Royal Geographical Society very properly insisted that, in the hands of competent teachers, it might become an efficient instrument for training the intellectual powers. Much of the existing misapprehension was due to the inadequate way in which geography was at present being taught in too many instances. Mr. Keltie's admirable report furnished ample illustrations of this fact. Having referred to Text-books and 'Readers,' the lecturer stated that he feared many teachers of geography had lost contact with nature. *Heimatskunde* on the widest bases, which included much more than a mere knowledge of the topography of the environs of the school, should be more largely introduced, in the shape of object lessons. It very largely developed the powers of observation and description, and a child grounded in it would become thoroughly possessed of numerous facts in physical and political geography, meteorology, and even astronomy, without ever having heard the names of these sciences. This elementary course would be followed by a consideration of our earth as a globe, and of the distribution of land and water. The third stage would comprehend a more detailed description of the various countries; and, in conclusion, the pupils would be presented with a systematic survey of general physical and political geography. Ritter's comparative method should be largely used, avoiding the extravagances of some of those who claimed to be disciples of that great geographer. The lecturer then alluded to maps and other appliances. He strongly protested against our schools being converted into establishments for copying maps, but pointed out how the drawing of maps and diagrams might be made useful vehicles of conveying knowledge and testing the intellectual powers. The method of teaching geography was not, however, likely to improve, unless some attention was devoted to the training of teachers. Some of the money now expended upon school fines might

* The Lectures, *in extenso*, with discussions, Mr. Keltie's Report, the Catalogue of the Exhibition, and other documents relating to the action of the Society on the subject of Geographical Education, will be included in a separate volume after the close of the Exhibition.

more profitably be granted to promising teachers in the shape of travelling stipends. Whatever was done, he trusted there would be laid down no hard-and-fast official method. Proper account should be taken of the individuality of teachers, and an intelligent inspector might be trusted to form a correct opinion of the efficiency of the instruction given.

After the lecture,

The Rev. Canon BUTLER said that no doubt all present had suffered from the insufficiency of the methods that were adopted in their youth for teaching geography. One of the first books he ever read which opened his eyes to how geography might be taught was a volume of lectures delivered by Arnold Guyot in America, who had the art of bringing truth before his readers in a very vivid way, dealing not only with facts, but also with principles. He was quite ready to endorse the statement that physical geography had been better taught in this country than political geography, but some foreign manuals treated the subject in a much more thorough and comprehensive way than any English books. He hoped that, before long, any deficiency in that respect would be remedied, and that a series of really valuable books for teaching geography in schools would be published in England. Every one who had been concerned in teaching geography must have been more or less indebted to Kiepert's maps, but perhaps there was ground for the assertion that the improvement of maps had come to a standstill. Some years ago he tried to bring before the University of Oxford the advisability of founding a lectureship or professorship of geography, and suggested that, if there was not work enough in that direction at one University, the professor might alternate between Oxford and Cambridge. With respect to maps, the chief deficiency that he had found was good large maps to illustrate campaigns and battles. The late Professor Vaughan introduced a great deal of physical geography into his historical lectures, and illustrated it by maps drawn by himself. There was nothing artistic about them, but they were very practical. With respect to raised maps, he thought very young persons might be induced to try their hands on them. He had seen young boys make very decent models, and outline whole continents in a very creditable way, hanging the specimens on their walls like so many frescoes. Boys at school could be got to take up the study of geography in a very hearty way, provided it was taught in an interesting manner. The amount of physical science, geology, meteorology, &c., introduced must depend very much on the lecturer. If he were a capable man he would avoid bringing in too many of these matters, but at the same time would avoid making his geographical lectures too dry by keeping too strictly to the old-fashioned method. Reference had been made to the comparative method introduced by Carl Ritter, and he (Canon Butler) had derived great advantage from that author's works, especially his essay on the comparative treatment of geography. The head masters of public schools must all have felt very grateful to the Society for the assistance given to them by the offer of medals for public competition, and he could assert that boys who competed for those medals were not led aside, and did not at all suffer in the general cultivation of their mind by it; while, on the other hand, when they travelled in foreign countries, they were able to observe and record facts in a scientific way, and the knowledge of geography acquired when preparing for the examination was for them of life-long advantage. He therefore regretted that the issue of the medals had been suspended because there was not sufficient competition among the great public schools. He believed the reason of this to be that there was not sufficient encouragement given at the Universities. Some of the best men that he had examined at Oxford seemed to think that battles were fought up in the sky. With a readership in geography and

a resident competent to impart and test geographical knowledge at the University, he thought that any knowledge acquired at the public schools might be continued and carried on, while the masters at the schools would feel that the information their pupils possessed would meet with adequate recognition at the University. Unless that were done, pupils would be attracted by the higher prizes for classics and mathematics, and abandon geography as a thing that did not pay. One aspect of geographical teaching should always be borne in mind, namely, its imperial importance. When the empire was being consolidated, and the federation of the Colonies was being so widely discussed, there must be great opportunities for enterprising geographers and for explorers to go to districts which had not been previously thoroughly examined. In that way he hoped that England would produce a school of young geographers who would be able to deal with all the facts presented to them, and so do honour to the country.

The Rev. H. B. GEORGE (New College, Oxford) said his experience with respect to geography had been twofold, first of all as attempting to teach it at Oxford, mainly from its historical rather than its scientific side, and, secondly, as having done a great deal of examining work in schools of the higher grade. With respect to the latter, he looked upon things rather hopelessly at present. The tendency was to leave geography alone, and he believed one reason was that the teachers knew but little about it. Of course the majority of the teachers came from the Universities, where their attention had been directed to other matters. He was ashamed to say that he was almost the only man resident in Oxford University who had lectured on geography, but he had done so in connection with the Modern History School for years past, though he found that due weight was not given to it in the examinations. If geography was to be made a living reality in the upper-grade schools, the place to begin with was the Universities from which the schoolmasters came. He had tried in vain to induce students to realise that they must know what the general physical aspect of the countries was before they could understand, for instance, why Napoleon's campaigns were fought on the Danube or the Po. Students had to be strictly utilitarian in their work, and therefore attended the hardest to things which paid them best, and if they were short of time they did not take great pains to obtain a knowledge of geography. It was necessary to induce the University authorities to attach a little more importance to the subject, and he hoped that the Royal Geographical Society would consider whether it was possible through the schools or otherwise to put pressure on the Universities. If that were done, he believed that the Universities would be induced to move.

Mr. H. W. EVE (University College School) said it had always struck him that an unusual combination was necessary in order to teach geography. The teacher ought to have a very fair amount of scientific knowledge, a strong imagination, and literary power. Mr. Ravenstein thought it best to teach without books, and every good schoolmaster practically did so; but good books were needed to guide them, and for the boys to read. In nearly all existing books the great drawback was the enormous mass of facts; in fact, reading an ordinary geography was not unlike reading a dictionary. People were very apt to forget that it was almost impossible to keep a fact in mind without some association, and geography seemed to have suffered somewhat in the same way as the history of literature had. Titles of works were read, but there was nothing by which they could be hung in the mind except now and then an epigram. He would like to see a geographical book put together in epigrams; it should pick out a few most important features of a country, and leave out everything that it was not very necessary to know. Some good campaigns might be selected for the purpose of teaching geography. He knew no better way of introducing a boy to study the geography of Russia than to take him to

Napoleon's campaigns, and to show the routes by which he could reach the "gates of the East" between the bend of the Dnieper and the bend of the Dwina. A similar observation might be made with regard to General Grant's campaigns in America, and the wonderful defence of Napoleon as he retreated before the Allies closing in upon Paris. The difficulty of teaching some boys mathematical geography was very often underrated, and Mr. Ravenstein must have had singularly hopeful pupils to deal with. He himself found that it took him a very long time before he could get boys of fifteen or sixteen to tell him for certain how high the sun would be at midday on the Tropic of Capricorn. There was a certain difficulty in their conception of anything on a sphere, and in their realising the position of the world in space.

Mr. SWINSTEAD said that about eighteen months ago he was put in a position, at the Stationers' School, Fleet Street, of having to teach geography without knowing anything about it. The boys were not sufficiently advanced to take mathematical geography into consideration, and he started from this, that if a child was to have any notion of geography he must have it in his mind somehow in the way of form. He therefore looked at maps in a very general way, and found that parts of the outlines of every map might be expressed by a few curves. He had constructed rather an elaborate system, and the result had been very successful among his scholars.

Professor HUGHES (Cambridge) said the subject which they were discussing divided itself into two branches, first, the appliances for teaching geography, and secondly, the periods in a boy's career at which he ought to be taught in a particular way. With regard to the appliances, he remarked that although some confusion might occasionally arise from mixing physical and political geography on maps, it must be borne in mind that not only had the relative positions of places to be pointed out, and the methods of getting there, but also what it was desired to call attention to when the person had arrived there. There should not, therefore, be any universal condemnation of what was not strictly erroneous. He entirely agreed with Mr. Ravenstein that the distorted scales of some maps had been of great disadvantage to learners of geography. However much Mercator's projection might in old times have facilitated giving instructions to sailors, it had certainly been in the way of geographers and students, who, when it was used, ought invariably to have the orthographic projection before them at the same time. Of course, he remembered that if relief maps of any district were drawn on a true scale they would not give a correct impression to the observer, who usually saw the mountains from below. From the top of Snowdon, the Isle of Anglesea and North Wales looked perfectly flat, but any one who drove across the country would find it very hilly. The same might be said of the plain of Lombardy, when viewed from the Alps. Therefore a little vertical exaggeration was necessary. Still, the true scale should be as nearly as possible adhered to. Such appliances as maps of the British Empire broken up in pieces on the same sheet should be entirely discarded. They destroyed all the aid to memory given by what Mr. Galton called "visualising." The publications of the Ordnance Survey were very cheap, and but few of them were wanted in a school, for it was not necessary that each pupil should have one. And for sections on a true scale, nothing better could be used than the sections of the Geological Survey, on the scale of six inches to a mile. Then with regard to the time when different subjects should be taught, of course the elementary schools could not be put in order until the schools above them were so, and these latter could not be until the Universities were. But he referred more hopefully than the previous speakers to the present state of geographical teaching in this country. He thought that Cambridge had advanced out of proportion to the advance

of the schools. There were every year one or two courses of lectures on physical geography. One of the favourite subjects in the Cambridge University Extension scheme was physical geography; and there were 7000 students scattered over the kingdom in connection with the University scheme, a very large number of whom had at some time or other gone through a course of physical geography. The tendency was for men to specialise earlier and earlier. All the geography which could be taught in common as bearing upon history or ethnology or physiography must be taught in the schools, and the special parts of each would be taught at the Universities in different departments. He entirely supported the movement inaugurated by the Royal Geographical Society.

Mr. LANGLER (Westminster Training College) said that the discussion had been on the teaching of the advanced subjects of geography and in connection with advanced schools, but Mr. Ravenstein had dwelt on the subject as affecting the general population of the country. If the great masses of the people were properly instructed in the geography—not the mere topography—of other countries, especially of the British Colonies, the idea of emigration might be popularised. Only the more intelligent of the labouring population were generally those who went abroad; the most ignorant did not, and it would be a great national advantage if the Society would help to diffuse a knowledge of geography amongst the lower classes. That subject was indeed extensively studied in the public elementary schools; problems which affected great circle sailing, or projections, were not necessary for the majority of the pupils in those schools, and he thought that the Society would do well to make popular in magazines and periodicals the ideas embodied in Mr. Ravenstein's lecture and in Mr. Keltie's Report. Could not the medals, or some other reward of a substantial or attractive character be conferred upon the young teachers in elementary schools, so as to encourage among them the study of geography, and thus lead them to give better, or more suitable instruction to their scholars? Such awards could be made, for instance, to candidates at the annual examination for admission to Training Colleges, if the Society could secure the co-operation of the Education Department. Or some other plan might be independently adopted to stimulate the profitable study of this subject which, with our overcrowded population, should be one of increasing interest and importance.

Mr. FRANCIS GALTON thought that a contrivance might be introduced into schools similar to one he had seen in the upper galleries of the Geological Museum in Jermyn Street. A small globe was placed there to represent the sun, and in the opposite gallery, at a distance of 93 feet, under a glass shade, there were hung two small balls to represent the earth and the moon. The whole were made true to scale. The sun was consequently but a few inches in diameter, and the earth was no larger than a large pin's head; the moon being of course still smaller. These two little balls were about three inches apart. A simple fixture of this kind would give to the scholars revelations as to the relative magnitudes and distances of the bodies of the solar system, and they might very easily be fitted up in any school.

The CHAIRMAN said the date of the Exhibition was fixed with reference to the approaching vacation at Board Schools, so that teachers from all parts of the country might examine the appliances. The impression had become pretty general that the value set upon proficiency in any particular subject by the Universities gave it a certain stamp in the educational system of the country; but when it was considered how very small a proportion of the population ever reached the Universities, it would be seen that no effort should be neglected to have a proper system of teaching geography in all schools. From the Report of the Royal Commission on the Great Public Schools, it appeared that only seven per cent. of the scholars at Harrow went on to the Universities. If that was true of a school like Harrow, what must be

the proportion in the rest of the country? Attempts were now being made to form an educational ladder by which children from elementary schools might be able to reach the Universities, and it was therefore certain that the teaching at the Universities must always exercise a considerable influence in other schools; but he quite agreed that it was most important to encourage the teaching of geography at elementary schools. At the present moment he believed that geography was infinitely better taught at the best elementary schools than at the great public schools, with the exception of two or three. He was sure the meeting would heartily thank Mr. Ravenstein for his admirable address, which showed such a thorough mastery of the subject, and such an appreciation of its difficulties; and he congratulated both the audience and the lecturer on the discussion which had taken place. It was a very hopeful first meeting, and he trusted that it would be succeeded by others which would display a growing interest in the subject. The object of the Exhibition was to promote the study of geography, and as he had been President of the Society when Mr. Keltie was sent to the Continent to make the inquiries which had terminated in the Exhibition, he should be disappointed if all the trouble that had been taken was barren of results.

Mr. RAVENSTEIN, after cordially thanking the meeting, said he found that children after two years' instruction in *Heimatskunde* were perfectly able to understand that the earth was a globe, and the meaning of latitude and longitude. Mr. Swinstead's efforts to create a system of teaching geography were most creditable to him, but the method was first introduced fifty years ago by Lohse and Agren, and had been practised with much success. It was, however, a complicated system, and it would be easier to make children remember the degree lines on a map than to learn the ingenious dodges which Mr. Swinstead had introduced.

LECTURE II. December 22nd, 1885.—Mr. FRANCIS GALTON, F.R.S.,
Vice-President, in the Chair.

On Geographical Appliances. By J. SCOTT KELTIE.

Before the lecture,

The CHAIRMAN said, that a fortnight ago, when the Exhibition was first opened, the President of the Society, the Marquis of Lorne, had stated the circumstances under which it had been called into existence, and the reasons why the Geographical Society had undertaken its superintendence. A week ago, at the second meeting, a most instructive, full, and luminous paper had been read by Mr. Ravenstein, and he (the Chairman) felt sure that all who had heard that excellent address must have gone away conscious of a valuable addition having been made to their geographical knowledge. The meeting held that day was the third of the proposed series, and the subject for the usual lecture was that of geographical appliances, such as those distributed about the rooms, and it was due to the zeal and energy of the lecturer—Mr. Keltie—that visitors were now able to inspect specimens of every kind of geographical appliance in the form of maps, reliefs, and globes, that existed either in England or abroad. Some were simple and gave only a general idea of the subjects with which they were connected, while others entered more into detail. With regard to the maps, some were cheaply got up in the first instance, and others were more expensive; and in this connection he would say that to him it appeared that the original cost of a good design for a map, as distinguished from the cost of reproduction, need be no bar to its being undertaken, because, considering the hundreds of thousands of children to be educated, there must always be a