

the glass itself must be kept absolutely clean, only *filtered* water to be put upon it, and the diamontine must invariably be protected from the dust.

A knife is sharpened when its edge appears smooth and straight under a magnifying power of 40-50 diameters.

When section cutting began a razor was the sharpest of familiar tools, and so it happened that for years razors were used not only for free-hand cutting, but also for microtomes. When knives began to be made specially for microtomes the razor type of thin blade was followed. We now know that the razor is the worst possible model for a microtome knife and that the chisel pattern is infinitely superior, because a thin blade is elastic, while a thick blade is rigid. With small objects or soft tissues the resistance may be so slight that the razor will cut them satisfactorily. Or, again, if the sections are thick the error of the razor may be unimportant, but for very thin sections, or for cutting difficult objects, the new heavy type of knife may fairly be said to be indispensable.

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XII. DEUTSCHER GEOGRAPHENTAG, JENA, 1897.

DURING the late Easter vacation there were gathered together, in the charming little university town of Jena, a large number of the German Scientists whose work touches more or less closely the field of geography. When one considers the variety of subjects represented he must put the question: What is Geography?—What has it been in the past and to what future fields is the present aspect of the science leading. To consider this theme, at length, is not the intention of the writer in giving a short account of this Congress of German Geographers, but he would like to use this

question as a connecting thread in the following lines.

There were nearly 600 members and associates in attendance, making this Geographentag the third largest in numbers of this series of most successful gatherings. Only Berlin and Vienna have had a larger attendance, and so it was said that Jena should be rated as a city with a million inhabitants. All those present were not from Germany, as eleven other nationalities were represented, these justly famous scientific gatherings naturally attracting foreigners. The addresses given are of such merit and given by such men as to induce many to come to hear, but it is not forgotten by the committees in charge that the most important feature of such gatherings is to bring the workers in various fields together, and to give them opportunities for conversation and consultation. The four and a half days were very happily arranged so as to supply a combination of attractions suited to the wants of all.

Under the presidency of Geheimrath Neumayer the members were led to consider the investigation of the region of the South Pole, and were shown that while very little in the way of actual exploration had been done by the commission, which was appointed at the XI Deutschen Geographentag in Bremen, still a large amount of material had been collected, and the way was being prepared for pioneer work in this little mapped region. Outline cartography, or the separation of land from water areas, is one of the early stages of geographic science. It is naturally followed by expeditions over land in the less known portions of the continents. This second phase of the science was represented at Jena by the three following papers: Expedition to Central Brazil, by Dr. Herrmann Meyer, of Leipzig; German Investigations in Asia Minor, by Dr. Heinrich Zimmerer, of München; Journey through Syria and Ana-

toila in 1895, by Roman Oberhummer, of München. Many interesting items of geographic news were brought back by these travelers, but they will not be enumerated here, for this sketch cannot go into many details. Let us, therefore, note the methods of the present explorations as contrasted with those of the past. When there were extensive areas of unexplored territory it was most inviting for an ambitious man to attempt to cover as much area as possible. How thin a covering of the ground was made by these early travelers is well known by any one who has tried to find out some particular thing from the accounts of their journeys. The modern traveler must study in more detail a given area of smaller dimensions, or take up some special problem in a larger area. An example is seen in the minute ethnographic studies made by Dr. Meyer in the interior of Brazil.

In America one is apt to look upon the work of the schools in Prussia as so far ahead of American schools in methods of teaching geography as to be almost a model to be followed; but the exceedingly suggestive paper of Oberlehrer Fischer, of Berlin, made his audience feel that there was much cause for instant improvement in the work of the teachers of geography in Prussia. The very valuable statistical tables presented by Mr. Fischer will shortly be published in a separate pamphlet with the text. Professor Dr. W. Sievers outlined a plan of extended excursions with students to teach them geography by a closer examination of typical forms in various regions. For the universities of middle Germany he suggested three trips in successive years, one to the coast, the second to the highland, and the third to the Alps. Professor Dr. J. Palacky, of Prag, spoke of the importance of an herbarium arranged according to geographical distribution of plants for the teaching of geographic botany.

One morning was given up to the discussion of the Geophysical problems of earthquakes and magnetism. Professors Gerland, of Strassburg, and Supan, of Gotha, led the former, and Drs. Ad. Schmidt, of Gotha, and E. Naumann, of München, the latter. Many others took part in the discussion. Professor Supan outlined a plan for the more systematic observation and recording of the local and more widespread earthquakes. Governmental aid is to be asked in the carrying out of some such plan. These problems bordering upon physics and geology would hardly be considered geographic in America. As one man expressed it at Jena, "The subjects of earthquakes and magnetism are considered under geography in Germany only because they belong nowhere else." Many other subjects from various sciences may be made geographic by considering them in relation to their distribution over the earth.

There were three papers in the field of biologic geography: 'Australian Fauna,' by Professor Dr. Semon, of Jena; 'The distribution of the various animals used in transportation and their dependence upon geographic conditions,' by Dr. Ed. Hahn, of Lübeck; 'The animals upon the island Borkum, particularly in regard to important observations for the geographic distribution of animals,' by Professor Dr. O. Schneider, of Dresden. Professor Semon presented tables showing the proportions of species living only in Australia and those living also in other neighboring lands. Dr. Hahn made a most interesting presentation of the marked geographic control shown in the distribution of the various beasts of burden in use in different parts of the world. Professor Schneider pointed out the importance of making a thorough study of the species inhabiting the Frisian islands belonging to Germany, before the same are connected with the mainland artificially, as is contemplated by the government.

Professr Dr. J. Walther gave the only physiographic paper of the week. He described in most picturesque language the present forms of the Thüringer *horst*, and showed how much more the form of this elevated block, or *horst*, of the Thüringer Wald, is dependent upon the series of northwest-southeast faults of late Tertiary to recent time than upon the system of the eastnortheast-westsouthwest folds of Carboniferous time. Where, however, these planed folds of the Erzinian system are resurrected by the stripping off of the Mesozoic strata the forms are in great measure controlled by the earlier made folds, as, for example, in the Cambrian ridge, Lange Berg.

Mathematical geography was also represented by one paper: 'The shadow cast by mountains and its effect in the Alps and in the mountains of middle Europe,' by Dr. K. Peucker, of Vienna. The mathematical calculations were too intricate for the audience to follow, but the graphic diagrams, illustrating the effects of varying trends and elevations in different sections, were followed attentively. One of the excursions was to the immense plant for the manufacture of optical instruments belonging to Carl Zeiss, where applied mathematics is used to the great advancement of science. The various delicate processes connected with the grinding and polishing of the many forms of lenses, as well as the forging and cutting of the metal portions of the instruments, were all shown and explained. The new tele-objectives for photographing at a distance or in places difficult of approach were examined, and the wonderful details seen in photographs made several kilometers distant were duly admired. The opera glasses with long tubes, capable of being extended in any direction in a plane at right angles to the line of sight, will no doubt be highly appreciated in the United States, where theater hats are not as yet out of date.

The longest excursion of the week was made to Weimar, where a special performance for the benefit of the members of the Geographentag was given in the theater, which is under the patronage of the Grossherzog and is closely associated with the lives of Goethe and Schiller. The points of historical interest in Weimar were opened to the guests in the same way that they had been in Jena. Among the other excursions were those to the battle field of Jena, to the Ilm graben, to the Saale valley, to the glass works, as well as visits to the collections in the university, the specimens brought from various deserts by Professor Walther, the zoological and other University departments. Walking parties in the beautiful suburbs of Jena and some social gathering every evening brought the workers in geography into closer touch with one another. Geographers as well as other men in Germany are particularly social and companionable after saying 'prosit' over their beer.

Geography in Germany attracts men. The average attendance at the monthly meetings of the Gesellschaft für Erdkunde in Berlin is 400-600. The study of the earth in its relation to man should attract men; nothing could be more natural. As a science, geography should be made more systematic; scientific, but clear and simple so that children may understand; comprehensive, since man is so many-sided; and yet trimmed of all irrelevant matter. Let us strive toward a high-ideal development of geography in America.

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STATUS OF FOREST RESERVATION POLICY.

By the vote of the Senate, on May 27th, adopting the conference report on the Sundry Civil Appropriation Bill, the United States government took one more forward step in establishing a forest policy; the