

well as keepers on the large majority of the more important moors constantly on the look-out for it."

In his own portion of the report Mr. Wilson observes that a condition similar to that supposed to be diagnostic of the acute form of the disease may be found in almost any grouse picked up dead upon the moors. Prof. Klein described and figured preparations of the lungs of grouse supposed to have died from the acute phase of the disease, in which the vessels are absolutely plugged by bacteria.

"Without doubt," writes Mr. Wilson, the observer "finds in his microscopic sections of similar lungs similar conditions, presumably of similar disease. But to the experienced bacteriologist a doubt occurs whether these plugs of bacteria in the vessels of the lung should not be considered *post-mortem* instead of *ante-mortem* productions; the result of *post-mortem* changes allied to decomposition, rather than to pathological changes due to disease in life. Following this comes another doubt, whether the more gross appearances of disease in the lungs on dissection are not really due to *post-mortem* changes rather than to disease in life. And upon examination of presumably healthy birds after a lesser or greater prolongation of *post-mortem* putrefaction and delay, suspiciously similar appearances in the lungs are certainly observed."

Again, experiment has shown that in a healthy pigeon killed by chloroform the appearances to the naked eye supposed to be characteristic of the acute grouse-disease make themselves noticeable in the lungs after a period sufficient to permit the development of *post-mortem* changes.

Reading between the lines, it seems to us apparent that the experts of the committee are very sceptical whether, in the first place, the acute phase of the disease really exists, and, in the second, if it be existent, whether it is of a pneumonic character. They do not, however, apparently "like to bet till they know."

To revert to the chronic phase, its place of origin and mode of dispersal are points to which special attention has been directed by the committee, but considerable difficulties have been experienced in these respects owing to the very natural reluctance of owners and keepers to report the occurrence of disease unless it is widely spread in their district.

One fact the committee considers to have been indisputably established, namely, the intimate connection existing between the food-supply and the health of the grouse, or, in other words, the fact that the capacity of the birds to resist the attacks of the intestinal worms depends mainly upon their physical condition and general fitness. Owners and keepers have for years been convinced of cycles of maximum and minimum development of grouse-disease. Records from various estates extending over a period of more than half a century indicate that the cycle comprises a good year, a very good year, the record year, the bad year, the recovery year, the average, and the good average year.

A regular sequence of events, culminating in an over-stock, a consequent shortage of food, the appearance of disease, and a sweeping of the moor, occurs in the rare cases where disease follows a bad year. Examination will, however, often show either that in such cases the effect of a previous outbreak had not passed away, or that exceptional conditions had reduced the food-yield of the moor to less than usual. Again, the exceptional occurrence of several consecutive good years may be attributed to a better heather-crop, through improved management, or to open winters or early springs which have allowed a larger stock of birds to be maintained.

The theory that disease is due to the consumption of frosted-heather is refuted by the fact that heather

in this condition is never eaten by grouse. Investigation has shown that grouse have to do all they know in the way of eating in order to maintain themselves in condition, especially in winter and spring; consequently any food-shortage at the two latter seasons is bound to result in ill-effects. Further, it has been observed that the mortality among hen-birds is most noticeable in late summer, perhaps induced by shortage of food during the nesting-season.

As regards remedial measures, nothing really definite can be suggested until much deeper investigation has been made into the life-history of the grouse thread-worm—investigations to which Mr. Shipley is devoting his best attention.

As contributory measures to the checking of the disease, attention is, however, directed to the importance of proper estate-management, in the matter of heather-burning, the supply of grit of proper quality for the birds to eat, the draining of the ground, and last, but not least, the killing off of weakly birds—"cheapers"—which cannot but give rise to a poor and ill-nourished progeny.

In conclusion, we desire to offer to the committee and the experts by whom they are assisted, our congratulations as to the admirable and exhaustive manner in which this very difficult inquiry and investigation has thus far been conducted.

R. L.

THE INTERNATIONAL GEOGRAPHICAL CONGRESS AT GENEVA.

THE ninth International Geographical Congress was opened at Geneva on July 27, and the business portion of the proceedings came to an end on August 6. It is only possible here to give a brief sketch of the subjects discussed and resolutions adopted.

As regards the general intention and meaning of the congress, it may be assumed that that somewhat vague word geography is usually taken to denote a group of studies connected with the influence of the surface features of the earth on the human race. But, if the proceedings of the congress may be taken as a guide, this aspect of geography has no very full recognition. By far the most prominent discussions and papers were those dealing with mathematical geography, cartography and allied subjects, and those treating of physical geography. The latter subject was chiefly in the hands of the geologists; indeed, it is hard to imagine anyone but a geologist doing useful work in this field. It might almost be said that geography, in the opinion of the average geographer, as deduced from the proceedings of the International Congress, is mainly the concern of surveyors and geologists. Geography in this sense is earth-knowledge; its chief function is to determine and explain the shape of the earth, the positions, forms, and characters of its surface features, and, so far as may be, to predict future surface changes.

Of the 232 papers of which the programme was composed, 124 dealt with physical geography, survey, exploration, and kindred subjects; 11 with rules and nomenclature; 14 with the teaching of geography. Meteorology accounted for 15, biology for 10, anthropology for 14, historical geography for 15, and economic and social geography for 26. The sectional meetings in some of the last-mentioned subjects were not well attended.

At the opening session a paper of considerable historical interest, entitled the "Circumnavigation of Africa under Necho II.," was read by M. A. Moret,

of the Musée Guimet. According to Herodotus, it was Necho II. who caused certain Phœnicians to undertake this journey, which lasted three years. The successors of Herodotus denied that Africa was surrounded by water, and the world remained ignorant of the truth of the case until the time of Vasco da Gama.

M. Moret described how he found a scarab inscribed with hieroglyphics amongst the objects left by the will of the late M. Burian, the Egyptologist, to the Musée Guimet. The inscription relates the return of the navigator Pa-du-Neit to Bubastis. This account is corroborated and completed by an inscription on another scarab in Brussels; this latter scarab also originally belonged to Burian's collection. The second inscription states that the explorer took one year and seven months to reach the Cape (of Good Hope?), that the entire journey lasted four years, and that Necho caused the details of the voyage to be engraved on a stele in the temple at Bubastis.

In the discussion which followed the reading of this paper, M. Naville expressed his belief in the authenticity of the scarabs. Prof. Oberhammer, however, pointed out the necessity of caution in accepting evidence of this character, and threw some doubts on the genuineness of the scarabs. The net result is that the layman is left very much where he was before, and it would appear that even if the scarabs be accepted as genuine, the accounts are too vague to indicate any high degree of probability that the supposed circumnavigation was accomplished at that early date.

Early in the proceedings of the congress a discussion was originated by M. Lecoq, director of the Royal Observatory of Belgium, on the subject of the organisation of an International Polar Institute. It appears that such an institute was founded at Uccle in 1907 by private enterprise, that it is strongly supported by the Belgian Government, and that it is intended eventually to instal the offices and library of the institute in Brussels.

At present the institute does not, perhaps, deserve the appellation "International." Its staff is essentially Belgian. It should be mentioned, however, that the scheme has the support of the Duke of the Abruzzi, of Captain Cagni, and of Mr. Nordenskjöld.

The intentions and objects of the Institute, as set forth in the prospectus circulated at the Congress, are:—(1) the formation of a special library, (2) the collection of maps and photographs, (3) the compilation of a bibliography, (4) the organisation of an encyclopædia, (5) the publication of an International Polar Review, and (6) the formation of a museum.

Now, although such an establishment would be instructive, and would, no doubt, have an educational value, it is extremely doubtful whether it would, in the present state of knowledge, be of any real practical service in assisting the work of polar exploration. For instance, would an intending British explorer study at the Brussels Institute when there is so much more first-hand information available in London? Is the existing information which we possess about the polar regions so voluminous as to require special and formidable apparatus of the character above described? These considerations prevented the British delegates from supporting the scheme, although they did not actively oppose it. Its ultimate failure or success will largely depend on the attitude of the principal geographical societies.

At the second general sitting of the congress, Prof. Penck read a report on the state of advancement of the general map of the world on the scale of 1:1,000,000. This scale was recommended by the London congress of 1895. Series of maps on this

scale have been published by the British War Office, by the French Service Géographique de l'Armée, and by the German Landesaufnahme. The United States Geological Survey is about to publish maps on the same scale, and General Schokalsky announced that the Russian geographical service was about to do the same.

A very practical proposition was made by Prof. Davis on behalf of Mr. Gannett, of the United States Geological Survey, that a committee should be appointed to recommend a uniform system of symbols and conventional signs. This proposal was warmly supported by the British delegates, who made the additional proposal that each Government or map-producing office should be asked to supply within twelve months specimens of maps on this scale to form a basis for discussion.

A temporary committee composed of one representative each of Great Britain, France, Germany, Russia, and the United States was appointed. The committee met without delay, and drew up a series of resolutions defining generally the character, symbols, and conventional signs of the map in question. These resolutions were printed and submitted to a general meeting of the congress, and were approved. They will now be brought to the notice of the various Governments concerned, and it is hoped that these Governments will appoint an official international committee to draw up detailed rules.

As was to have been expected, a good deal of time was devoted to the discussion of the history, structure, and action of glaciers. Prof. Penck gave an address on the climate of the Alps in the Glacial period. He pointed out that although the glaciers descended to a low level, there was in the centre of the Alps a region entirely free from ice. The extension of the glaciers may be considered as due to a diminution of temperature of a few degrees only. M. Chodat supported Prof. Penck's theories from the botanist's point of view.

Prof. Brunhes dealt with glacial erosion. He described the difference between glacial valleys of a U form with a stepped longitudinal section, and those of the V form of regular longitudinal slope.

M. Raoul Gautier directed attention to the correspondence between the oscillations of glaciers during the nineteenth century and temperature observations at the St. Bernard. Several speakers pointed out the importance of the erosive action of the glacial streams. M. Jacob described the glacial research carried out in Dauphiné under the direction and at the cost of the Ministry of Agriculture; and there were many other communications on the same subject.

Glacial literature and discussion appear to be growing at a somewhat alarming rate. A summary, in English, by a competent writer, of modern investigations and theories would be useful.

There is no space here to describe, even in outline, the discussions in the borderlands known as historical geography, biological geography, and ethnographic geography. As regards meteorology, few of the communications had any strictly geographical bearing, and the greater number were more suited for discussion at a meteorological congress.

The arrangements of the congress were satisfactory as regards the halls and lecture-rooms, which were lent by the University, to which body the delegates owe their thanks. But in one important respect the organisation was defective. No summaries of papers were published in advance, and it was difficult to discover in advance anything about the character of the communications. It is much to be hoped that at the next congress, which will be held in

Rome in 1911, the following points may be attended to:—(1) The working session should be limited to one week; (2) only papers of serious scientific value should be accepted; (3) summaries of all such papers should be distributed (in the four authorised languages) on the opening day.

On the social side the delegates have every reason to thank the Federal and Cantonal authorities, the organising committee, and the Swiss members of the congress for their charming hospitality.

As to the outcome of the congress, the principal concrete result is the step taken towards the standardisation of the 1:1,000,000 map. But in all such meetings the obvious results are by no means the only ones to consider. It is no small gain that men of many nationalities, interested in a particular group of studies, should meet together to exchange ideas and experiences. One cannot doubt that such meetings have a value in broadening human knowledge and sympathies which is not to be measured in any simple quantitative way. As the president of the Swiss Confederation said, in words which it would be difficult to improve, "Votre Congrès contribuera au rapprochement des nations et à la fraternité entre les peuples, car rien n'est plus propre à dissiper les divergences de vues et à élever le regard au-dessus des bornes-frontières de chaque pays que la connaissance des lois universelles qui régissent le monde et unissent d'un lien naturel la grande famille humaine." C. F. CLOSE.

MAMMOTH-HUNTING IN ALASKA.

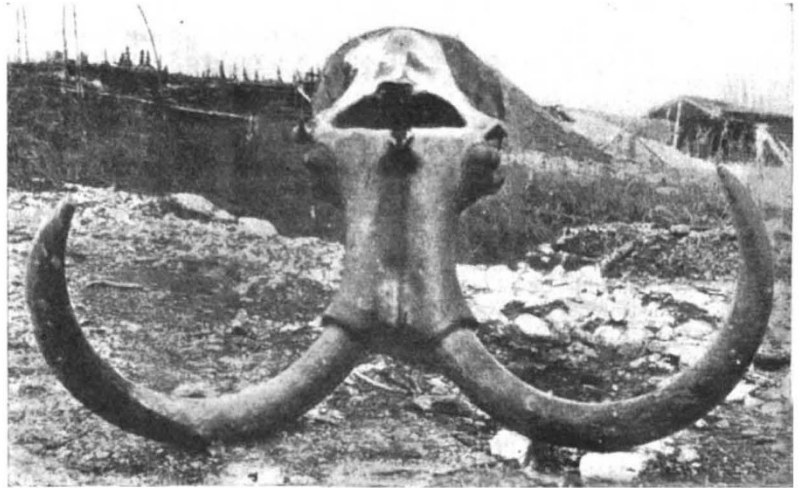
SINCE Kotzebue's discovery of fossil remains of mammoth and musk-ox in 1815, Alaska has been famed as a store-house for Pleistocene mammals; and in 1904 the Smithsonian Institution dispatched an expedition to obtain specimens for the museum at Washington. This expedition also visited Yukon territory, where it was successful in obtaining the magnificent mammoth skull shown in the accompanying illustration. Last year a second fossil-hunting expedition was dispatched by the same body, in charge of Mr. C. W. Gilmore, the results of which are recorded in vol. li. of Smithsonian Miscellaneous Collections. Mammoth-tusks of very large size were seen and measured, although it does not appear that the finest were transported to Washington. Incidentally, it is mentioned that the largest known skeleton of the mammoth is in the museum of the Chicago Academy, and is stated to be 13 feet in height. If this be true, reconsideration of the opinion that the mammoth was an animal of the approximate size of the Indian elephant is apparently demanded. Reports have been current to the effect that remains of the American mastodon occur in the Alaskan mud in company with those of mammoth. This, however, is an error, such remains being found in this region only in the "placer" deposits of the Yukon, which are doubtless of somewhat earlier age. The other remains discovered by the expedition include those of bison, elk, horse, beaver, and bear. The bison-skulls, some of which retain the sheaths of the horns, are referred to two distinct

species, and indicate animals with an enormous horn-spread, altogether unparalleled by their modern representative. Alaskan mammoth-ivory is stated to be, on the average, inferior in quality to that from Siberia.

ALPHONSE PÉRON.

IT is with deep regret that we record the death of Alphonse Péron, eminent geologist and soldier, who passed away at Auxerre on July 2, after a lingering illness.

Pierre Alphonse Péron was born at Saint Fargeau on November 29, 1834, and studied at the college of Auxerre, where his lively interest in natural history soon became manifest. At the age of nineteen he entered Saint Cyr, whence he passed into the infantry in January, 1855. He served in various districts in France and in Corsica, was engaged in Algeria in the suppression of the rebellion of 1864, obtained his captaincy in 1867, and in the Franco-Prussian war served with the army of the Rhine. At Sedan he was severely wounded and left for dead upon the field. He retired from the army in 1896, having



Skull and tusks of *Elephas primigenius* found 42 feet below the surface, in the muck, on Quartz Creek, near Dawson, Yukon Territory, Canada.

received the honour of Commandeur de la Légion d'Honneur in 1890.

Notwithstanding the exacting nature of his military duties, Péron neglected no opportunity for the indulgence of his taste for geology. Wherever he went he never failed to note the geological characters of the district, and, when possible, to make a collection of fossils. His observations in the field provided a considerable number of memoirs and notes which have appeared in the Memoirs and Bulletins of the Geological Society of France, of which society he was elected president in 1905; in the *Comptes rendus de l'Académie des Sciences*, in the *Comptes rendus de l'Association française pour l'Avancement des Sciences*, and other serials. The *Société des Sciences historiques et naturelles de l'Yonne*, in which he took great interest and ably supported his friend Cotteau, owes much of its success to his energy; in the Bulletin of this society are to be found some important papers from his pen. Among Péron's principal contributions to geological science since the appearance of his first work, "Notice sur la Géologie du Canton de Saint Fargeau," published in 1865,