

the sides slope more or less rapidly, the mass being deeply and widely eaten into on opposite sides by two principal valleys, those of the Dordogne and the Chambon.

It is with the southern valley, or that of the source of the Dordogne river, that we are concerned, the head of which occupies a noble amphitheatre facing the south, immediately under the highest summit of Mont Dore. My companion and myself were on our way to the summit of the Pic de Sancy, from the village of Latour about seven miles to the westward; we were skirting the rocky and very steep sides of the amphitheatre at an elevation of some 5,000 feet, and were enjoying the view of the snow-streaked mountains of the Cantal which bounded the horizon to the southwards at nearly forty miles' distance, when my attention was arrested by some large objects on the broad and level (as seen from a height) floor of the valley at our feet. They were presumed huts, haystacks, or glacially transported blocks, and their position in reference to the head of the valley and amphitheatre

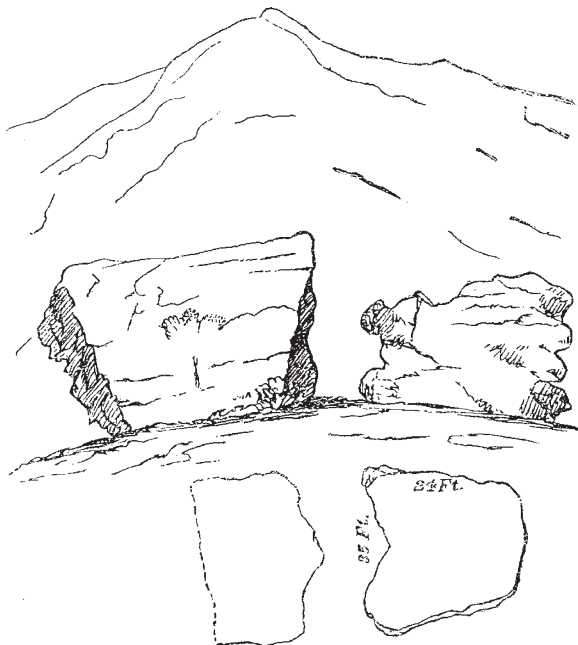


FIG. 3.—Transported block split into two pieces in the Tranteine Valley, Mont Dore.

theatre so strongly inclined me to the latter view, that I determined on visiting them before leaving the neighbourhood. Accordingly, on the following day, I took the high road to Latour, south-eastward to the village of Chastail. Then leaving the road, I descended and crossed a small stream to the eastward. The ascent of its steep opposite bank led through beechwoods to a broad flat ridge with some cheese-makers' huts upon it, from which, still proceeding eastward, I descended by a gentle slope immediately upon the floor of the valley, and found myself amongst a group of magnificent boulders that had evidently been deposited by an ancient glacier which had flowed from the rocky amphitheatre at the head of the valley.

The blocks were of trachyte, and what I took to be domite, of the same nature as the rocks towards the top of the pic; they were scattered over an undulating surface, which I guessed to be about half a mile long by a quarter of a mile broad, and occupied both the floor and the very gentle slopes of this part of the valley, up to perhaps 200 feet above the stream. Others were seen further down the valley, which however soon contracted; its

stream, which meandered in the position of the greatest number of blocks, becoming, beyond it, a torrent. For about a mile above this there were no blocks; that is, between my position and the base of the steep cliffs forming the amphitheatre where the glaciers had descended. The largest blocks were those furthest down the valley; at least twenty of them appeared to me to be upwards of as many feet in length, and one of greater length was also of greater height. Several were split in two, like blocks that had been fractured by falling through the crevasse of a glacier. All were weather-worn and covered with lichens, ling, and grass.

Returning I took a north-westerly direction, ascending the spur I had crossed in coming, passing close under a magnificently mountainous mass of basalt to the east of the Puy de Pouge. Still further eastward and south of this Puy are meadows where brood mares and foals are grazed, upon which were a few large blocks of trachyte or basalt artificially shaped into very odd forms, some like skittles, others like a truncated cone with the earth heaped up round its base; they may be worthy of further investigation, but I had no time to examine them and no opportunity of making inquiry. Thence my direction lay under the Puy de Compaine, and so by a steep descent to the Ruisseau de la Chambasse, which I followed to the village of Sarsenae, and thence ascended to Latour.

J. D. HOOKER

#### ASSOCIATION OF GERMAN NATURAL PHILOSOPHERS AND PHYSICIANS

THE forty-eighth meeting of this Association was held from the 18th to the 25th of September at Gratz, the chief town of Styria, in one of the most beautiful valleys of the Austrian Alps.

The Association is the oldest of its kind; founded in 1822, and preceding, therefore, by several years, the birth of its British sister. In times of political disturbances and wars, such as the years 1848, 1866, and 1870, it held no meetings; in several previous years the German Governments, who in days gone by regarded every public meeting with suspicious eyes, prohibited them, and thus forty-eight meetings only were held during the fifty-four years of its existence. The German "Naturforscher-Versammlung" owes its formation to one of the founders of comparative anatomy, the celebrated Oken, late Professor of Zoology at Jena, and it cannot be denied that politics entered into the intentions of its founder as well as of many of its original members. When German unity was nothing but a treasonable aim of persecuted patriots, every meeting of Germans from different States served to spread and to give fresh vigour to this aim, and was in itself a protest against the division into small States of the common country, and against persecutions such as Oken himself has had to suffer. Aye, even now, when the old wishes have been fulfilled and no division separates Government and nation, remains of the old political undercurrent can still be traced in some of these meetings.

Gratz has an entirely German population, whose sympathies with the new German realm are increased by their proximity to Slavian provinces. It has taken a prominent part in the Reformation, and although brought back to the old religion by threats of fire and sword, by the establishment of Jesuit colleges and the suppression of the Protestant University once graced by Kepler, it still glories in its old recollections and carries high the banners of freedom and of its German nationality. In 1842, the "Naturforscher-Versammlung" was invited to Gratz and gave to that town a foretaste of the right of association then proscribed in Austria, and in 1875 the town opened her gates once more to her non-Austrian brethren, principally to assert her intellectual unity with Germany. This idea, and their enthusiasm for the freedom of thought, formed the

chief contents of the opening address delivered by Prof. Rollett, and of the welcome tendered by Dr. Kienzel, the chief magistrate of the town. The Government was represented by the lord-lieutenant of the province and by an under-secretary of the Board of Agriculture, while the Minister of Public Instruction welcomed the meeting in a letter excusing his absence. The Emperor Francis Joseph had contributed largely to the costs of the meeting. But this did not prevent his Government from interfering with the hoisting of the flags of Germany, which were destined to greet the visitors on their entrance into the town. It would naturally be supposed that the sympathy evinced by the town of Gratz would have been responded to by large numbers of German visitors. In this respect, however, the meeting was destined to be a disappointment, without any very prominent reason to account for it. Most likely a good many reasons contributed to this result: such as the distance of the place of meeting from the centre of Germany, the bad aspect of monetary matters, the day chosen for the assembly, which, lying in the middle of the summer vacation, prevents visitors from taking journeys into distant countries. Again, some of the branches represented in the Association have commenced to hold separate meetings: the geologists, the astronomers, the societies for the improvement of public health, for ophthalmology, psychiatrics, and surgery, hold separate annual meetings independent of the Association of Natural Philosophers and Physicians. Lastly, certain events that have lately taken place in Austria seem to have deterred German members of the Association from visiting the Austrian Empire. It will be remembered that some of the most prominent German professors of the University of Prag have been all but forced to leave their posts, and that the vacillating policy of the Austrian Government wishes at present to reconcile the Slavian population by excluding as much as possible German influence from Austrian Universities.

The number of visitors at the meeting of Gratz was 715 members, 1,567 associates, and 1,700 lady associates. Of the 2,282 male visitors, 1,705 belonged to Austria (1,141 being residents of Gratz), and 546 to the German Empire; 114 of the latter being residents of Silesia, the nearest German province. Seventeen Russians, four Swiss, three Turks, two Swedes, two Roumanians, and one visitor from England, one from Italy, and one from America make up the total. It will be seen that this number corresponds very nearly with the average number of attendants at the British Association.

This, of course, is a merely fortuitous resemblance. But many other points indicate that the British Association has been modelled from the German pattern. Both Associations are convened for the same number of days; both hold the same number of general and sectional meetings; they resemble each other in the nature of the recreations offered to visitors: excursions, dinners, concerts, to which in Germany (and Austria) are added balls and theatrical performances, while England has the private hospitality of its nobles and rich manufacturers and merchants to offer, which do not enter into the German programme or certainly do not appear in it to the same extent. A festivity of a peculiar character in addition to those named was offered by the municipality of Gratz: an illumination by bonfires of the mountains surrounding the town, a sight of most impressive beauty.

Generally speaking there are no evening meetings in Germany, and the festivals being of a public nature (not depending upon private hospitality), the connection between the visitors is greater than it is at the British meetings. A peculiarity of the German meetings is the absence of a president; two *chargés d'affaires* (*Geschäftsführer*) being nominated to conduct the business of the Association, one a natural philosopher, one a physician. Professors Rollet and L. von Pebal occupied these positions in Gratz. The sections nominate new presidents

for each of their daily meetings. A consequence of this arrangement is a certain want of formality. No retrospective introductions are offered at the opening of the sectional meetings, no criticisms of the work of fellow-workers by more or less competent critics, no sweeping remarks on the state of science in general, which happen to be the more disparaging the less the critic himself is actually engaged in contributing to the advancement of the branch of science he is discussing.

In two respects the British Association has an indisputable advantage over the German meetings. Those splendidly illustrated evening lectures addressed to the general public, which form one of the attractions of the meetings in the United Kingdom, are not offered in Germany.

Again, the funds of the German Association are small; they are spent for the purposes of each meeting, and no money can be given in grants for scientific purposes as is done in Great Britain. There are therefore no general and no sectional committees in Germany. On the other hand, the German Association offers the advantage of a speedy publication of its transactions. Instead of publishing an annual volume long after the close of the meetings, the German Association offers a daily paper (*Tageblatt*) giving the proceedings in a more or less condensed form according to the notes given by members to the general or the sectional secretaries. Generally some supplementary numbers are issued, completing the report within one month after the conclusion of the meeting.

The papers read at the general meetings are mostly given in full. At the first general meeting at Gratz, after the opening ceremony already alluded to, the Arctic explorer, Lieut. Weyprecht, gave a most interesting review of Arctic explorations, and at the same time a curious and stirring piece of self-criticism.\* Amongst the most characteristic passages are the following:—

“Originally it was the wish for material gain, in the shape of fur and fish-oil, that prompted Arctic exploration. Later on this cause was replaced by the ambition of geographical discoveries such as are easily understood by the general public. The running after this sort of fame gradually assumed such proportions that Arctic exploration became a sort of international steepchase towards the North Pole, a system opposed to true scientific discoveries. Topographical geography must be subordinated in Arctic regions to physical geography. Geographical discovery derives its value only from scientific discoveries connected with it. The exploration of the great and unknown latitudes near the poles of our globe must be continued without regard to the expenditure of money and of life which it demands. But its ulterior aim must lie higher than the mere sketching and christening in different languages of islands, bays, and promontories buried in ice, and the mere reaching of higher latitudes than those reached by our predecessors. One reason of the indifferent results of previous expeditions is that they have been unconnected with each other. The progress of meteorology consists in comparison, and every success it has obtained, such as the laws of storms, the theory of winds, &c., is the result of simultaneous observations. The aim of future Arctic explorers must be to make simultaneous observations, extending over the period of a whole year, with identical instruments and according to identical rules. In the first place, they will have to consider natural philosophy and meteorology, botany, zoology, and geology, and only in the second place the discovery of geographical details. I do not intend in what I said to depreciate the merits of my Arctic predecessors, whose sacrifices few can appreciate better than I do. In giving utterance for the first time to these opinions, which I have taken time in forming, I complain against myself, and I condemn the greater part of the results of my own arduous

\* Some of the chief points in this address we gave in NATURE, vol. xii. p. 539.

labours. I will conclude by announcing that the future participation of Austria in such an enterprise has been secured by the generosity of a man who has already made several sacrifices in the interest of Arctic voyages."

The Mæcenas of the new expedition alluded to but not named in this announcement is understood to be Count Hans Wilczek.

Weyprecht's manly speech was followed by great applause, and has already produced the effect of inducing the Commission appointed by the German Government to examine the question of expediency of a new expedition to the North Pole, *not* to recommend the despatch of a new expedition, but the establishment of stations of observation in northern latitudes.

The second general meeting selected Hamburg for its place of assembly in 1876, and appointed the chief magistrate of the town, Burgomaster Kirchenpauer, and Dr. Dantzel, to manage affairs. Prof. Behn brought before the meeting the plan of a society for the assistance of scientific men in reduced circumstances.

Dr. Günther then gave a very interesting lecture, to which, unfortunately, no abridgment could do justice, on the aims and results of the history of mathematics; followed by Prof. Benedict on the history of crime with regard to ethnology and anthropology. He touched upon delicate ground, asserting that every action is based less on liberty than on compulsion; that our acts are governed by natural laws and not by theological opinions, and that punishment may act as a corrective of perverted human nature, but is chiefly the outflow of the desire of society to avenge wrongs inflicted upon it. The best prevention of crime depends upon the increase of our knowledge of those circumstances that necessarily engender it. In England a speech like this would no doubt have raised a storm of theological indignation. In Germany the clergy is distinguished by its absence from scientific meetings. The separation of natural science and orthodoxy is complete, and no opposition was therefore offered to these remarks.

In the third and last general meeting two popular medical lectures were given, one by Dr. Ravoth, on nursing the sick; the other by Dr. Lender, on ozone (the latter gentleman having made some doubtful efforts of introducing infinitesimally small doses of ozone into medicine). Then Prof. von Pebal rose, and declaring the order of the day exhausted, thanked the members for their attendance at Gratz, and proposed a vote of thanks to the sovereign in whose realm they had assembled. This proposal having been cheerfully responded to, Dr. Stilling proposed and carried a cordial vote of thanks to the town of Gratz, and Dr. Rollet, who presided at the meeting, declared the assembly closed.

Of minor incidents may be mentioned the invitation of a society in Offenburg (Black Forest) to contribute for a monument to be erected to Oken in this his native town; and the distribution of several works written for the occasion, amongst others a guide to Gratz, and a commemorative volume published by the Medical Society of that town.

Reverting at last to a short review of the proper business of the Association, its sectional meetings, the reader will remark the absence at the German assembly of one of the most popular sections of the British Association, viz., that of engineering, while several other sections appear in the German programme that are omitted in the British society, notably those devoted to medicine. This review will form the subject of a second article. A. OPPENHEIM

#### THE GERMAN COMMISSION ON ARCTIC EXPLORATION

THE German Commission on Arctic Exploration, appointed by the Reichskanzler, and to which we have before referred, consists of Professors Dove and

Neumayer, Doctors v. Richthofen and Siemens from Berlin, Prof. Karsten from Kiel, Prof. Grisebach from Gottingen, Prof. Zittel from Munich, Prof. Bruhns from Leipzig, Prof. Quenstedt from Tübingen, Director Rümker from Hamburg, Professors Schimper and Winnecke from Strassburg. The Commissioners have held meetings at Berlin from October 4 to 13; and the result of their deliberations—a long memoir on the value of the different branches of science—has been delivered to the Bundesrath for further consideration. The *résumé* of that report is contained in the following unanimously adopted conclusions:—

"1. The exploration of the Arctic regions is of great importance for all branches of science. The Commission recommends for such exploration the establishment of fixed observing stations. From the principal station, and supported by it, are to be made exploring expeditions by sea and by land.

"2. The Commission is of opinion that the region which should be explored by organised German Arctic explorers, is the great inlet to the higher Arctic regions situated between the eastern shore of Greenland and the western shore of Spitzbergen.

"3. Considering the results of the second German Arctic expedition, a principal station should be established on the eastern shore of Greenland, and, at least, two secondary stations, fitted out for *permanent* investigation of different scientific questions, at Jan Mayen and on the western shore of Spitzbergen. For certain scientific researches the principal station should establish temporary stations.

"4. It appears very desirable, and, so far as scientific preparations are concerned, possible, to commence these Arctic explorations in the year 1877.

"5. The Commission is convinced that an exploration of the Arctic regions, based on such principles, will furnish valuable results, even if limited to the region between Greenland and Spitzbergen; but it is also of opinion that an exhaustive solution of the problems to be solved can only be expected when the exploration is extended over the whole Arctic zone, and when other countries take their share in the undertaking.

"6. The Commission recommends, therefore, that the principles adopted for the German undertaking should be communicated to the Governments of the States which take interest in Arctic inquiry, in order to establish, if possible, a complete circle of observing stations in the Arctic zones."

#### NOTES

WE take the following from the *Times*:—

The award of the medals in the gift of the Royal Society for the present year, by the Council, is as follows:—The Copley Medal to Prof. A. W. Hofmann, F.R.S., for his numerous contributions to the science of chemistry, and especially for his researches on the derivatives of ammonia; a Royal medal to Mr. William Crookes, F.R.S., for his various chemical and physical researches, more especially for his discovery of thallium, his investigation of its compounds, and determination of its atomic weight, and for his discovery of the repulsion referable to radiation; a Royal medal to Dr. Thomas Oldham, F.R.S., for his long and important services in the science of geology, first as Professor of Geology, Trinity College, Dublin, and Director of the Geological Survey of Ireland, and chiefly for the great work which he has long conducted as Superintendent of the Geological Survey of India, in which so much progress has been made that in a few years it will be possible to produce a geological map of India comparable to the geological map of England executed by the late Mr. Greenough—also for the series of volumes of Geological Reports and Memoirs, including the "Palæontologia