

ing was not very large, but it is hoped that when the conclusions arrived at by this committee are circulated to all the members a universal agreement as to a specification very much on the lines of the British standard specification will be reached. In regard to iron and steel, the difficulties are much greater, but it is hoped that a nearer approach to agreement may be reached in time for the next congress; meanwhile, the only definite result in this direction is a carefully worded resolution indicating that the congress recommends the sale of pig-iron on a basis of chemical analysis alone, the old method of grading by fracture being discarded as too indefinite.

In Section B the papers dealing with reinforced concrete were first discussed, but the discussion was of a very general nature, the desire being widely expressed that methods of testing and experimenting should first of all be systematised and standardised. One of the subjects which received most attention was that of the action of sea-water on cement, the report by Poulsen describing the elaborate series of tests carried out on various points of the coast of Scandinavia from Esbjerg, in the south-west, to Vardö, at the extreme north of Norway, being very favourably received. Ultimately the section passed a resolution, combining one proposed by Mr. Sachs and another proposed by a French representative, setting up a committee to bring the whole question up to date for the next congress by preparing a summary of the papers already before the association, and also to carry out further experiments with specially prepared cements exposed to sea-water to test the influence of various percentages of sulphates.

In connection with cement-testing there was a good deal of heated discussion, principally as to the definition of a "standard sand," while Mr. Blount and his committee had to contend with some strong opposition in carrying their proposals in regard to volume-constancy tests.

A general business meeting of the congress took place on the concluding day (Saturday, September 11). After the formal business had been disposed of, Mr. J. E. Stead, F.R.S., was asked to deliver his lecture on the practical application of the microscopic examination of metals at the present time. So little time remained, however, that Mr. Stead could only give a very brief summary of his subject-matter, the lantern-slides being, however, shown in the afternoon by special request. While the report of Heyn on the progress of metallography had summarised the work of laboratories and investigators, Mr. Stead dealt with the use of the microscope in works practice, and was able to give an account of the manner in which microscopic methods were employed by a large number of firms both in England and in America. Examples of successful application of microscopic methods in the case of cast-iron, steel, copper, brass, and many other metals were given, the names of the firms in question being stated, including all those best known in their respective industries. The use of the microscope in the investigation of failures and breakages was finally described.

In addition to the actual business of the congress, the programme arranged by the reception committee included a large number of interesting visits and excursions; these included the new railway repair workshops, the works of Messrs. Burmeister and Wain, where shipbuilding is carried on, the Royal Danish Porcelain Works, and a number of municipal institutions, such as the electric power station, the refuse destructor, &c., as well as the newly organised State testing laboratories, the great breweries of Carlsberg and the fine museums endowed from their profits. The evenings of the congress week were occupied by a series of brilliant functions, including a reception by the Danish Society of Engineers, another by the Municipality of Copenhagen, a special performance at the Royal Opera House, and, finally, excursions to Sgodsborg and to Elsinore on the Oresund; the former, carried out by means of a steamer, which first took the party around the harbour of Copenhagen, was especially enjoyable, and it was followed by an informal dinner of huge dimensions (more than 900 sat down) at the beautifully situated Sgodsborg Hotel. Our Danish hosts were most warmly hospitable, and everything was done to make the impressions of Copenhagen as pleasant as possible—

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even the weather was favourable, so that the 500 visiting engineers saw Copenhagen at its very best. Although it may perhaps be said that no very striking decisions have been reached at this congress, it has undoubtedly served a very valuable purpose in bringing together a large number of scientific and technical workers who had hitherto known one another by correspondence only. Linguistic difficulties were, of course, of frequent occurrence, but willing interpreters were generally at hand; the discussions of the congress were, as a rule, translated into the three official languages—a difficult task, in which one or two of the British delegates displayed considerable activity. In fact, it was a widely expressed feeling—not a little gratifying to the British representatives—that at this congress there was much evidence of the fact that a great revival in matters of applied science had taken place in England since the last meeting of the congress. It is to be hoped that when the congress meets next—in America in 1912—still further evidence of this revival will make itself felt. Adequate British representation at these congresses is of great importance, not only in securing the due consideration of British interests, but also in securing due respect for British achievements and British capacity—respect which will help to promote the cause of universal peace.

GERMAN BOTANICAL CONGRESS.

A FEW years ago the three German societies specially interested in one or other branch of botany agreed to meet in the same district and at the same time each year, and the arrangement has proved so advantageous that it has become permanent. This year the societies met at Geisenheim, on the Rhine, in the Rheingau. The Botanical Institute at Geisenheim, where the meetings were held, is liberally supported by the Prussian Government, and in most respects seems ideal. Both staff and students are well housed on the spacious premises, and the courses are arranged to suit many different types of students. Owing, however, to the continuity of courses throughout the year, there is no regular vacation for the staff, the members of which must in time, one would think, lose somewhat in vigour and freshness of teaching. The institute exists for the promotion of the interests, scientific and practical, of the vineyard, and its wine, and of the fruit and vegetable industries.

There are separate buildings for chemistry, plant physiology, pathology, and fermentation, each fully equipped and under its own chief. The connection between science and practice is very intimate, and research is encouraged. From the fermentation station pure yeast cultures are sent all over the world. The whole institute is under the able administration of Prof. Wortmann, to whom the success of this year's meeting is largely due.

Naturally, several papers on the vine and on wine, too specialised for general notice, were contributed by experts. Attention was directed to the fungus *Rhacodium cellare*, which lives on cork, and causes the deterioration of wine in store. Sound sterilised corks, replaced unconditionally each year, are a necessary precaution against the damage wrought by this trouble.

Much of the time of the economic botanists was occupied by papers on the potato and its diseases. Particular attention was directed to the disease called "leaf-roll," not to be confused with "leaf-curl." Alarmist reports of the extent of the disease and of the injury it was inflicting appeared in the German Press last year. Though these reports have been shown to be exaggerated, the disease is clearly doing much harm. It is, as the writer noticed, widely spread in many parts of Ireland, but not yet recorded for Great Britain, or for France (judging from a conversation recently with M. Maublanc at the Pathological Institute in Paris). There are several features of striking interest in connection with leaf-roll. It is generally recognisable by the more or less dwarfed, stunted haulms, and the inrolled, often more or less coloured, leaflets. In leaf-curl the surface of the leaflets is crumpled. In the first year of attack the tubers may appear sound and of normal weight. The disease is, however, in them, as shown by the next year's diminished, diseased crop. Appel's view, that *Fusarium* is generally present in the

vessels of the stem, is not supported by others. One hypothesis is that the disease is due to degeneration of the particular variety attacked, another that manure and soil may have a disturbing influence on the metabolism and ferments of the plant. No one has yet succeeded in infecting healthy stock with leaf-roll. It is readily transmitted by tubers, and, Count Arnim thinks, possibly by seeds also. In spite of all the attention devoted to the investigation of this disease, its cause is still a mystery, and until this is solved it is impossible to suggest general preventive measures. On no account should the tubers from a leaf-roll plant be used as seed.

During the meeting Wittmack summarised his views on the tuber-bearing species of *Solanum*. He holds that all European potatoes come from one true species, *Solanum tuberosum*, that *S. Maglia* is also a true, closely allied species, and that both differ from *S. Commersonii*. He praised highly the drawings, made for Sutton and Sons, of the *Solanums* by Worthington Smith. Wittmack was sent by the German Government to inspect the plots of *S. Commersonii* violet, believed by Labergerie and Heckel to be a valuable disease-resisting variety, and, they think, derived from *S. Commersonii* by mutation. It appears, however, to be identical with Paulsen's Blue Giant, a variety of *S. tuberosum*, and, like all other varieties, liable to leaf-blight and other potato diseases.

Lindner directed attention to the difficulties of identification of fermentation organisms. He proposed the creation in Berlin of a central station where photomicrographs of such organisms from all parts of the world could be stored, named when necessary, and registered for consultation. He illustrated his views by three volumes of such photographs, and in the course of the meeting used them to name a soil organism exhibited by H. Fischer. Housseus described the rice industry in Siam, and urged the claims of rice on the Germans as a cheap and nutritious food. Ewert described the over-wintering of the conidia of *Fusicladium*, the cause of apple and of pear spot. The systematists devoted one day to the reading of papers by Drude, Gilg, Diels, Ross, &c. Schwendener was elected honorary president of the Deutsche Botanische Gesellschaft, before which, at a morning sitting, two important papers were read, one by Senn on the movements of chromatophores, including a beautiful illustration of diatom cell-division, and another by Kniep on assimilation activity under different rays of light.

A special feature of this year's meeting, which ought not to go unrecorded, was the testing in different localities of the wine of the district. On the last day at Geisenheim the three bodies sat in common for three hours to test no fewer than thirty-five different kinds of wine, provided by the Rheingau Wine Society.

Some forty members subsequently spent several days in botanical excursions in the valleys of the Nahe and Mosel. At Bertrich fine specimens of *Buxus sempervirens* and *Acer monspessulanum* were to be seen growing in plenty on the rocky slopes. On the shores of the crater-lake (Pulvermaar) at Gillenfeld, *Pilularia globulifera* formed a regular sward.

It was agreed to meet next year at Münster in time to allow members to attend the International Botanical Congress, and also the Seed-testing Conference at Brussels at Whitsuntide.

T. J.

THE BRITISH ASSOCIATION AT WINNIPEG
SECTION H.
ANTHROPOLOGY.

OPENING ADDRESS (ABRIDGED) BY PROF. JOHN L. MYRES,
M.A., F.S.A., PRESIDENT OF THE SECTION.

The Influence of Anthropology on the Course of Political Science.

ANTHROPOLOGY is the Science of Man. Its full task is nothing less than this, to observe and record, to classify and interpret, all the activities of all the varieties of this species of living being. In the general scheme of knowledge, therefore, anthropology holds a double place, according to our own point of view. From one standpoint it falls into the position of a department of zoology, or geography; of zoology, since man, considered as a natural

species, forms only one small part of the animal population of this planet; of geography, because his reason, considered simply as one of the forces which change the face of nature, has, as we shall see directly, a range which is almost world-wide. From another point of view anthropology itself, in the strictest sense of the word, is seen to embrace and include whole sciences such as psychology, sociology, and the rational study of art and literature; since each of these vast departments of knowledge is concerned solely with a single group of the manifold activities of man. In practice, however, a pardonable pride, no less than the weighty fact that man, alone among the animals, truly possesses reason, has kept the study of man a little aloof from the rest of zoology. Dogmatic scruples have intervened to prevent man from ever ranking merely as one of the "forces of nature," and have set a hard problem of delimitation between historians and geographers. And the pardonable modesty of a very young science—for modern anthropology is barely as old as chemistry—has restrained it from insisting on encyclopædic claims in face of reverend institutions like the sciences of the mind, of statecraft, and of taste.

Yet when I say that anthropology is a young science I mean no more than this, that in the unfolding of that full bloom of rational culture, which sprang from the seeds of the Renaissance, and of which we are the heirs and trustees, anthropology found its place in the sunlight later than most; and almost alone among the sciences can reckon any of its founders among the living. This was of course partly an accident of birth and circumstance; for in the House of Wisdom there are many mansions; a Virchow, a Bastian, or a Tylor might easily have strayed through the gate of knowledge into other fields of work, just as Locke and Montesquieu only narrowly missed the trail into anthropology.

But this late adolescence was also mainly the result of causes which we can now see clearly. Man is, most nearly of all living species, the "ubiquitous animal." Anthropology, like meteorology, and like geography itself, gathers its data from all longitudes, and almost all latitudes, on this earth. It was necessary therefore that the study of man should lag behind the rest of the sciences, so long as any large masses of mankind remained withdrawn from its view; and we have only to remember that Australia and Africa were not even crossed at all—much less explored—by white men, until within living memory, to realise what this limitation means. In addition to this, modern Western civilisation, when it did at last come into contact with aboriginal peoples in new continents, too often came, like the religion which it professed, bringing "not peace but a sword." The customs and institutions of alien people have been viewed too often, even by reasonable and good men, simply as "ye beastlie devices of ye heathen," and the pioneers of our culture, perversely mindful only of the narrower creed, that "he that is not with us is against us," have set out to civilise savages by wrecking the civilisation which they had.

Before an audience of anthropologists, I need not labour the point that it is precisely these two causes, ignorance of many remoter peoples, and reckless destruction or disfigurement of some that are near at hand, which are still the two great obstacles to the progress of our science. But it is no use crying over spilt milk, and I turn rather to the positive and cheering thought that the progress of anthropology has been rapid and sure, in close proportion to the spread of European intercourse with the natives of distant lands, and that its further advance is essentially linked with similar enterprises.

Anthropology and Politics in Ancient Greece.

Philosophy, as we all know, begins in wonder; it is the surest way to jostle people out of an intellectual groove into new lines of thought, if they can be confronted personally and directly with some object of that numerous class which seems uncouth only because it is unfamiliar. The sudden expansion of the geographical horizon of the early Greeks, in the seventh and sixth centuries B.C., brought these earliest and keenest of anthropologists face to face with peoples who lived for example in a rainless country, or in trees, or who ate monkeys, or grandfathers, or called themselves by their mothers' names, or did other disconcerting things; and