

The names of the past-presidents who were being honoured were:—

	Elected	President
Prof. William Odling, F.R.S. ...	1848	1873-5
The Rt. Hon. Sir Henry E. Roscoe, F.R.S. ...	1855	1880-2
Sir William Crookes, O.M., F.R.S. ...	1857	1887-9
Dr. Hugo Müller, F.R.S. ...	1859	1885-7
Dr. A. G. Vernon Harcourt, F.R.S. ...	1859	1895-7

Unfortunately, Sir Henry Roscoe was absent through illness.

After the loyal toasts had been duly honoured, the president gave that of the "Past-presidents who have completed their Jubilee of Fellowship." He referred to the personalities of the jubilee past-presidents, and to the particular work in which each was more especially distinguished: Sir Henry Roscoe, for his research on vanadium and as a pioneer educationist; Sir William Crookes, for his discovery of thallium, his researches on the rare earths, the genesis of matter and diamonds, and his brilliant discoveries in physics; Dr. Hugo Müller, for his researches on cellulose and discoveries in connection with printing; Dr. Vernon Harcourt, for his researches on the rate of chemical change and his work as an enthusiastic teacher; and Prof. William Odling, the doyen of chemistry, to whom all chemists will find it difficult to fathom their debt of gratitude.

In replying to the toast, Sir Henry Roscoe, whose speech was read by the president, drew on his reminiscences of the thirty-one past-presidents of the society, all of whom with the exception of two he had known, and of his association with the society.

Sir William Crookes sketched the steps by which he was led to the discovery of radio-activity. He stated that no law is more certain than the law of change. Radium has shaken our belief in the conservation of substance, the stability of the chemical elements, the undulatory theory of light, and the nature of electricity; it has revived the dreams of alchemists, and has cast doubt upon the very existence of matter itself. Physicists are beginning to say that there is no such thing as matter; that when we have caught and tamed the elusive atom and have split it into 700 little bits these residual particles will turn out to be nothing more than superimposed layers of positive and negative electricity. Speaking of the War Office Committee of which he was a member, he stated that what our country now most urgently requires is "brain-craft," the master of "hand-craft," and researchers who will cultivate chemistry for its own sake.

Dr. Müller commented on his association with the Chemical Society, on its rapid growth and increasing activity.

Dr. Harcourt referred to the influence of the growth of chemistry upon the teaching of the science as a part of general education, and to the importance in education of a knowledge of the general results of scientific inquiry and of some insight into the methods by which such knowledge has been gained. He mentioned the difficulty which the teacher of chemistry finds in keeping himself abreast of his subject, and the danger of teaching the latest hypotheses to students who are only studying science as a part of education and chemistry as a part of science, if it mislead them into believing that, because they have gained the latest lights, they have a thorough grasp of the science.

Prof. Odling referred to his connection with the four past-presidents who, with him, were being entertained, and with many of the older chemists, and of the association of Oxford University with the society.

Sir Edward Thorpe proposed the toast of the honorary and foreign members, which was replied to by Prof. Haller, president of the French Chemical Society, and Prof. Wallach, president of the German Chemical Society. At the conclusion of his speech Prof. Haller presented, on behalf of his society, a silver medal of Lavoisier to each of the jubilee presidents in honour of the occasion.

The last toast of the evening, that of "The Guests," was proposed by Sir William Tilden and acknowledged by the Duke of Northumberland, president of the Royal Institution of Great Britain, Mr. H. L. Samuel, the Postmaster-General, and Herr Generaldirektor S. Eyde, of Christiania.

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THE INTERNATIONAL AGROGEOLOGICAL CONGRESS AT STOCKHOLM.

A FEW months ago (August 4) we reviewed the proceedings of the first International Agrogeological Congress, held at Budapest in 1909. The second was held this year simultaneously with the International Geological Congress at Stockholm, as an experiment. It was well organised by the local committee and well attended, the membership numbering about 160. The sessions were arranged to allow the frequent attendance of members at the geological meetings in which they were likely to be interested. But it seems to have been recognised by most that the bonds of association between the two congresses were not so close as to render it necessary, or even desirable, that they should be held at the same place and time; and it was decided by the council that the next meeting should take place independently at St. Petersburg four years hence.

A prominent feature in connection with the congress was the very interesting exhibition of specimens, maps and instruments illustrating the science of the soil, which was brought together in the rooms of the Technical School, 44 Mästersamuelsgatan. The Swedish exhibits, which naturally formed the greater part of this collection, included sample-sections of the typical soils and subsoils down to the underlying strata from which they were derived. The sections of peat-mosses which showed changing conditions of accumulation were particularly noteworthy. Excursions were made, both during and after the congress, through selected districts and to the chief agricultural stations, thus enabling the visitors to appreciate the local methods of practical research, as well as to gain personal knowledge of Swedish agricultural conditions.

The papers read at the meetings were grouped together by their subject-matter, so that each session was devoted to the discussion of a separate problem. As was to be expected from the earnestness which has been thrown into the study of soils in Germany, most of the papers were given in German. Indeed, hardly any other language was used at the sessions. At the opening meeting on the morning of August 17, Prof. Gunnar Andersson delivered his instructive presidential address on "The Swedish soil-types and their distribution," in which the geological bearings of the soil-study were allowed a prominence which they rarely attained in the subsequent discussions. At the afternoon session the 'leit-motif' was "The mechanical analysis of soils," with illustrative papers by Dr. A. Atterberg (Sweden), Prof. P. Vinassa de Regny (Italy), and Dr. W. Beam (Egypt).

At the subsequent sessions, on August 18, 19, 20, 22, and 24, the following were the principal subjects of discussion:—"Colloids of the soil," introduced by papers by Prof. E. Ramann (Germany) and Dr. D. J. Hissink (Holland); "Preparation of extracts of soils for chemical analyses," after papers by Prof. A. de Sigmond (Hungary), Prof. A. Vesterberg (Sweden), and Prof. A. Rindell (Finland); "Nomenclature and classification of soils," with papers by Prof. E. W. Hilgard and Prof. R. H. Loughbridge (California), Prof. P. Kossowitsch (Russia), M. Béla de Inkey (Hungary), and Dr. B. Frosterus (Finland); "Systematic soil-surveying," with papers by Dr. K. O. Björlykke (Norway), Prof. K. Gorjanovič-Kramberger (Croatia), and Prof. F. Sandor (Croatia); "The analyses of peat soils," with papers by Dr. E. Haglund (Sweden) and Dr. H. von Feilitzen (Sweden). There were a few other papers, chiefly on the chemical side of the subject, which did not fall under the above headings, among them being an interesting general account of the soils of Egypt, by Dr. W. Fraser Hume.

As a merely personal impression of the proceedings from a geologist's point of view, it may be remarked that, with the rapid advance of specialisation in the study of soils, the connection of the subject with geology seems to have become more remote. It was only in the papers dealing with the mapping of soils that geological considerations were brought into prominence, and even then only as a basis for specialised classification. For the rest, it was toward physics, chemistry and plant-physiology that the new methods of research approximated. The major part of the papers dealt with the laboratory treatment of soils, mechanically and chemically, and with the

resultants of the varied treatments. In the process of dismemberment it must often happen that the true individuality of a soil is lost, so that schemes of laboratory classification sometimes arbitrarily separate agricultural similars and unite agricultural discordants. This was recognised in several of the discussions, and the students of the soil are now fully alive to the complexity of the problems needing investigation. In the opportunity afforded for comparing and criticising the diverse methods of research the congress was eminently successful; and on the social side it was wholly pleasurable.

EDUCATION AT THE BRITISH ASSOCIATION.

THE presidential address this year was devoted to the topic of university education. Readers of NATURE have already had an opportunity of reading Principal Miers's suggestive discussion of the relations of teachers and pupils at school, and of the change of method which should differentiate university from school education. Incidentally, the address raised the very practical question of the present overlapping of the two, and led to the appointment of a research committee, with the president as chairman, to investigate the subject and to report at Portsmouth next year.

The presentation of the reports of the Section L research committee on mental and physical factors involved in education, and of the committee of Section H on the establishment of a system of measuring mental characters, was made the occasion for a joint session of the two sections for the discussion of research in education. In the report of the committee of Section L the gradual integration of a science of education, drawing its data, as Prof. Schuyten wrote, from hygiene, anthropology, physiology, normal and abnormal psychology, pedagogy, and sociology, and yet with a common centre of reference and an inner coherence which set it apart from each of these related sciences, was indicated. The work in psychopedagogy now carried on in this country was briefly reviewed, and it was shown that, in spite of the lack of funds which was everywhere reported, researches were on foot in at least ten university centres. Prof. Green in his introductory remarks showed how poorly off we are in this respect in comparison with such countries as Belgium, France, Germany, the United States, and even with Russia, where the War Office, in discharging its responsibility for the education of the children of officers, maintains a professor and a laboratory for research work alone. He also urged the importance of training for researchers in this as in all other branches of specialised research, a point which was subsequently taken up by Dr. C. S. Myers and other speakers. Prof. Findlay explained how the university departments were in this matter sent from pillar to post, Treasury grants being refused on the ground that the Board of Education always looked well after their own, while the Board, on the other hand, in set terms disavowed all responsibility for research work. The position, as the president said, is "disgraceful."

A typical illustration of more purely pedagogical research was contributed by Dr. T. P. Nunn in his sketch of the methods of algebra teaching worked out in the demonstration schools attached to the London Day Training College. The old theory of algebra, associated with the name of Euler, in which the symbols are regarded merely as numbers—"a large number of numbers"—has given place to the view of Chrystal and others, to whom algebra is a systematic science capable of development from its own axioms. The difficulty of adopting this view for school purposes is precisely the difficulty which faces the new school of geography teachers, namely, that the rationalising motive, the desire to build up a system for its own sake, does not develop in the English schoolboy much before his sixteenth or seventeenth year. Dr. Nunn has therefore based his method on the utilitarian motive, and aims at every stage to exhibit the value of the results for application. At the same time he seeks to comply with the schoolmaster's demand that the subject shall have "training value." Thus algebra for school purposes becomes an instrument of the capabilities of which are throughout explored, and so extended, a kind of linguistic for the expression of thought operations. A large audience

followed with keen interest Dr. Nunn's application of the theory in such crucial instances as the factorisation of $a^2 - b^2$, and the explanation of the product of two negatives. The processes under his hand revealed the behaviour of realities, and no longer, as of old, came out of the void.

As an illustration of research upon mental processes Dr. Spearman gave an account of an inquiry into individual variations of memory among some 400 subjects. His results showed that the correlation coefficient between different ways of memorising was always positive, or, in other words, that the powers of memory showed some tendency to correspond, however the material upon which they were exercised might vary, while the more like two performances were the greater was the degree of correspondence. The common view that people of quick memory forget more rapidly than those to whom memorising is a slow process was shown to be erroneous, the correlation coefficient between the two remaining the same after a lapse of time. It was also shown that the difference between the two types could be largely traced to the method of recall, the quick memory being predominantly auditory and motor, the retentive memory visual and ideal. Finally, a high correlation was established between memory and teachers' estimates of general intelligence, in spite of the fact that the data upon which the latter were based were often obscure and variable.

The remainder of the sitting was occupied by a series of papers and discussions on the measurement of intelligence, in which accounts were given of practically all the researches on this subject hitherto conducted in this country. Dr. Otto Lipmann discussed the methods of Binet and Simon (*Année Psychologique*, 1908, xiv., pp. 1-94) and of Bobertag (*Zeitschrift für angewandte Psychologie*, iv.). His paper has been printed in full in *The School World* (October), so that here it will suffice to say that in his opinion their methods do not promise any certain test of a high degree of intelligence. We associate intelligence of this character with depth and power of self-criticism; but these things must be neglected in experimental tests, for results which would demonstrate the absence of these may be due to bodily condition or temporary inattention. On the other hand, the tests of Binet and Simon will establish with certainty whether a child is of sufficiently normal intelligence to be equal to the public-school course. The importance of this achievement will be seen when it is remembered that under English law a school medical officer may at any moment find it necessary to satisfy a bench of magistrates that a particular child ought to be sent to a special school for mentally defective children.

Mr. Cyril Burt described a series of experiments performed with a group of elementary-school children at Oxford, the result of which was to cast doubt upon the view that there is an intimate correspondence between power of sensory discrimination and general intelligence. A series of experiments with girls of secondary-school age at Liverpool tended to show that, by comparison with simple sensory and motor tests, tasks involving higher and more complex processes are less liable to be vitiated by absence of special training in the experimenter, and also have a more intimate relation with intelligence. Mr. William Brown discussed the mathematical technique of the evaluation of the results of intelligence tests, and maintained that the method of multiple correlation should always be employed.

Mr. J. G. Gray asserted the value of perseverance as an index of the quality of intelligence, explaining perseverance as dependent upon an elemental brain property which determines the persistence of mental impressions. He described a modification of Wiersma's colour disc devised by himself in order that the luminosity of the two colours the fusion of which at a certain rotation speed gives the index of perseverance might be regulated by the experimenter.

Mr. H. S. Lawson described a series of tests, based upon Binet's, to which the candidates for scholarships at a Midland secondary school were submitted. The order thus established was correlated with the official scholarship order in two successive years, the coefficients being 0.217 and 0.485. The tests had also been used to check the official order of merit obtained from a term's marks