

condenser capacity by analogy with models immersed in a solution of copper sulphate, and the rotation of bodies with dielectric surfaces when suspended between the poles of a Wimshurst machine.

In the section devoted to famous historical experiments, Prof. E. V. Appleton exhibited a coil from King's College and used by Joseph Henry in his work on self-induction; Sir Charles Wheatstone's step-by-step telegraph designed in 1840, and a variable resistance box and bridge by the same inventor; and James Clerk Maxwell's model illustrating the induction of currents; while Sir William Bragg exhibited apparatus used by Tyndall in his investigation on so-called spontaneous generation.

Of the almost bewildering assemblage of apparatus, the following exhibits are selected for particular notice: C. Baker, for epidiascopes; The Cambridge Instrument Co., Ltd., an oxygen recorder for boiler feed

water, a carbon dioxide recorder for flue gases, a magnetic bridge permeameter, and a glass electrode potentiometer; Crompton and Co., Ltd., their "S.M.S." hygrometer and new wattmeter; W. Edwards and Co., rotary vacuum pumps; Adam Hilger, Ltd., the Guild trichromatic colorimeter and spectrographic apparatus; H. Hughes and Sons, Ltd., echo-sounding gear; Klaxon, Ltd., the 'Audiwave' machine for relieving deafness; Negretti and Zambra, meteorological and electrical appliances; L. Oertling, Ltd., special physical balance with 22 ft. light beam; Ogilvy and Co., dark ground condenser, 1.20 N.A., objectives, and colorimeter; H. Tinsley and Co., electrical and stroboscopic apparatus; and Carl Zeiss (London), Ltd., the "Bitukni" binocular microscope attachment, microscope stand G, Nordenson photographic ophthalmoscope, and direct vision monochromator with wavelength scale. H. W. H.

The Science Masters' Association.

AT the kind invitation of the Vice-Chancellor of the University, the annual meeting of the Science Masters' Association was held at Oxford on Jan. 4-7. The membership of the Association has grown rapidly in the last few years, and at this, the twenty-seventh, annual meeting, some 450 members were present out of a total of 1200. Formal proceedings opened on Tuesday evening, when Brig-General H. Hartley delivered his presidential address in the large hall of the City of Oxford School. Choosing as his subject the rise and development of the ionic theory, the president gave a masterly survey of both the fundamental work and recent advances, pointing out the way in which the difficulties presented by strong electrolytes are being overcome. To the evident relief of his audience, General Hartley said that practically no change was necessary in the method of teaching elementary work on the theory. On the motion of Sir Richard Gregory, seconded by Mr. H. A. Wootton, a hearty vote of thanks was accorded the president for his address, but much to the disappointment of the Association Prof. H. E. Armstrong, who was present, could not be prevailed upon to speak.

On succeeding days, lectures on various scientific subjects were given by members of the University of Oxford and others, two of the most attractive being that of Prof. E. B. Poulton upon "Protective Mimicry in Insects" and that of Prof. H. H. Turner upon "Eclipses" with special reference to the forthcoming total solar eclipse visible in England. Prof. Poulton's lecture, to judge from the applause it evoked, met with warm appreciation. It was admirably conceived and delivered, and was illustrated with a large number of exquisite lantern slides. We believe it should have been of the greatest value to science teachers, in that it showed how natural history may be made to afford a sound training in scientific method in an extremely attractive way.

The Association was fortunate in securing Prof. Turner's lecture on the total eclipse, not merely on account of the intrinsic value and interest of the lecture, but also because Prof. Turner demonstrated in an inimitable way how difficult astronomical conceptions could be made clear to boys and girls. He captured his audience at once with his small spheres for the earth and moon, indiarubber balloon for Jupiter, and large carriage-umbrella for the sun. After a very lucid description of the causes of eclipses in general, he related the story of several famous examples of the phenomenon, winding up with a graphic account of the Einstein eclipse of 1919. He then described the course of the total eclipse of June next, and urged upon teachers the importance of making arrangements to allow as many of their

pupils as possible to see this event, which is likely to prove unique to most Englishmen now alive. Prof. Turner suggested that camps should be formed in suitable spots along the course to accommodate children for the preceding night, and said that he had been in communication with the Board of Education and with the authorities of the Boy Scouts' Association. It is desirable that arrangements should be made some time in advance, and science teachers would do well to lay the matter before their respective headmasters and headmistresses at the earliest opportunity. Fortunately, the date of the eclipse (June 29) does not clash with matriculation, school certificate, or higher certificate examinations, and we therefore hope that the school authorities will view with leniency any alterations in routine which may be necessary.

Through the efforts of the president and of the local secretary, Mr. H. R. Raikes of Exeter College, visits were made to the various colleges, the Bodleian Library, the Clarendon Press, the Morris Works at Cowley, and other places of interest. The wonderful collection of historic scientific instruments at the Old Ashmolean proved very popular, and one heard on every hand the wish expressed that some one would do for Cambridge what Dr. Gunther has done so excellently for Oxford. The collection is rendered additionally valuable by the series of "Old Ashmolean Reprints" now in course of publication, and by Dr. Gunther's small but delightful handbook.

In the Clarendon, electrical, and other laboratories, demonstrations and exhibits had been prepared by members of the University. This feature, which entails a great deal of work on the part of the demonstrators and exhibitors, is always warmly appreciated by members of the Association, who find it of the greatest value as a concentrated refresher course and as a source of new ideas with which to infuse their school lessons.

As in previous years, there was an exhibition of scientific books and apparatus. On the table reserved for books written by members of the Association there were no less than forty-nine exhibits, a number which says much for the enthusiasm and literary energy of our teachers of science. It was pleasing to note that these books were by no means all textbooks; some dealt with the history of science, some with science in its more general aspects, and one at least—Dr. I. B. Hart's well-known book on the mechanical investigations of Leonardo da Vinci—was evidence of sound and exacting original research.

The large size of the publishers' exhibit was an unmistakable sign of the importance they attach to this annual meeting. In spite of many counter-attractions,

their stalls were always surrounded by crowds of members, and if the keenness of the latter on the latest literature of their subjects is any indication of their educational ability, science teaching in the schools of Great Britain is by no means in the parlous state described intermittently by one or two pessimists. The same interest was shown in the excellent exhibit of scientific apparatus staged by the principal firms; it was clear to an observer that many masters had waited for the exhibition before giving orders for apparatus, and were now busily engaged in spending their grants to the best advantage. The epidiascope, an instrument of incomparable educational value, was a principal focus, and though the price is still too high for a good many schools, we imagine that the makers must have been very well satisfied with the result of their exhibit.

At the business meeting of the Association, held on Thursday morning, the most important step was the alteration of the membership rule to include, under certain conditions, science masters not at present eligible. The chairman, Mr. E. J. Holmyard (Clifton), pointed out that if the Association is to retain control of science teaching in the boys' schools of Great Britain, it is essential that no one doing appropriate work should be ineligible; at the same time, the moment is not opportune for any radical change in the required qualification for membership.

The president and chairman of the Association for 1927 are Sir Thomas Holland and Mr. C. E. Sladden (Eton College) respectively. Before the close of the meeting the members unanimously and enthusiastically asked the chairman to convey a message of congratulation and good wishes to Canon J. M. Wilson, one of the pioneers of science teaching in England and a man whom the whole association holds in affectionate regard. A sympathetic reference was also made to the death of Sir William Tilden, president of the Association in 1904.

At the end of the meeting the chairman, on behalf of the Association, conveyed a very hearty vote of thanks to the Vice-Chancellor of the University of Oxford for the splendid hospitality with which the University had received its members.

University and Educational Intelligence.

ST. ANDREWS.—University College, Dundee, will benefit to the extent of £25,000 under the will of the late William Gibson of Ellieslea, Broughty-Ferry, Dundee. This sum becomes payable on the death of the testator's two sisters, and is to be used to build and equip a laboratory for study and research in pathology and bacteriology.

A COURSE of four free public lectures on "The Total Eclipse of the Sun in June in Northern England" will be given by Mr. A. R. Hincks at Gresham College, Basinghall Street, E.C.2, on Jan. 18, 19, 20, and 21 at 6 o'clock. No tickets will be required.

ON and after Jan. 17 a new series of conducted tours will be started for school teachers in the exhibition galleries of the Imperial Institute. Guide lecturers will meet parties of school teachers at 3 P.M. daily, except Saturdays, at the east and west entrances, and conduct them through the various courts, indicating the utilisation and economic value of the various products which are exhibited. It is hoped that teachers will bring at a later date organised parties of school children from their schools and give them practical lessons in economic geography and Empire development in these galleries. Head teachers who wish to send representatives from their

schools should make application in writing to the Secretary, Imperial Institute, South Kensington, S.W.7, at least three days in advance. The guide lecturers will also be available to conduct parties of school children at 10 A.M. and 11 A.M. daily, except Saturdays; each party should be limited to about twenty children, accompanied by a teacher. Applications for dates for these tours should be made in the same way to the Secretary, Imperial Institute, South Kensington, S.W.7.

ACCREDITED colleges and universities in the United States are listed in Bulletin 1926, No. 10, of the Bureau of Education. The lists represent, not national governmental approval, for the Bureau makes no attempt to rate or to standardise the collegiate institutions of the country, but recognition by a number of voluntary agencies and by State universities and State departments of education. It is on these lists that all who desire to learn the standing of colleges and universities in the United States must rely for information. A notable step towards the standardisation of the methods employed by these accrediting agencies was taken in 1922 when the American Council on Education, pursuant to the recommendations of a report approved by a conference held in 1921, defined standards for accrediting colleges, junior colleges, and teacher-training institutions. These standards have been adopted in entirety or with certain modifications by the several national and regional associations and by a number of the State departments of education and Church boards of education. Of these associations, the best known outside America is the Association of American Universities. This body has signified its approval of 171 institutions, of which 34 are universities of complex organisation, usually with graduate schools 16 technological institutions, and 121 colleges. These lists are also given in the "Universities Year-book of the British Empire."

THE New Education Fellowship (11 Tavistock Square, London, W.C.1) is organising a fourth world conference, to be held at Locarno on August 3-17 next. The general theme of the conference is to be "The True Meaning of Freedom in Education." Among the speakers and group leaders are to be Profs. Bovet of the University of Geneva, Decroly of Brussels, Lombardo-Radice of Rome (editor of *L' Educazione Nazionale*), and Carson Ryan of Swarthmore, the editors of *Das werdende Zeitalter*, Dr. Alfred Adler of Vienna, author of "Individual Psychology," Dr. Adolphe Ferriere, editor of *Pour l'Ère Nouvelle* and founder of the International Bureau of New Schools, and several people actually engaged in the teaching of children. The announcement explains that although much of the conference proceedings will be devoted to problems of the teacher in relation to the child, yet time will be given to the discussion of the personal problems of the teacher, who, it is pointed out, needs to study the art of true freedom; this comes not from unrestraint but from right inner control. The Fellowship aims at discovering the principles of this art both for the child and for the teacher. Time is to be given to investigating the problems of the secondary school and to discussing how far progressive methods can be applied to them without prejudicing examination results. The organisers, mindful of the urgent need of what a contributor to the *Times Educational Supplement* of Dec. 4 calls "a triple alliance" of parents, teachers, and employers, have provided for attention being given not only to the child at the school and in the home but also to post-school problems.