

by Prof. Braun, of Strassburg, who employs three vertical antennæ placed at equal distances, and sets up in these oscillations having certain assigned differences of phase. Hence, by the interference of these oscillations, the resultant radiation is made a maximum in a certain direction and zero in an opposite one.

In conclusion, some questions were dealt with concerning the varying opacity of our atmosphere to long electric waves and the effects of sunlight and radio-active matter in hindering their transmission. Although much valuable invention and discoveries in connection with this subject have rewarded the labours of workers in many lands, a glance round shows innumerable unsolved problems still remaining. Having regard to its importance for naval and maritime communication, scientific research in connection with wireless telegraphy is not merely desirable, but a positive duty, and it is to be hoped that the tendency to legislate for it by Acts of Parliament or international conferences will not impose shackles upon the freedom of investigation or of commercial work which alone can conduct us to the satisfactory solution of the difficulties and problems which yet remain.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

BIRMINGHAM.—Mr. S. S. Dawson has been appointed to the chair of accounting vacated by Prof. Dicksee.

A sum of about 1000*l.* has been given by the Birmingham Chamber of Commerce to found a scholarship in the faculty of commerce.

MANCHESTER.—During recent years, with the increasing number of students who come from other parts of the country and from abroad the accommodation in the two halls of residence for men students has had to be extended on several occasions. The opening of the new buildings of Hulme Hall, in Victoria Park on July 6, which are to displace the older buildings in Plymouth Grove, marks an important advance, and rooms are immediately available for forty students, whilst this hall will later be extended to accommodate sixty.

ST. ANDREWS.—An important addition to the equipment of the Gatty Marine Laboratory has just been made by the presentation of the late Mrs. Alfred Gatty's extensive collection of British and foreign marine algæ by her daughter, Mrs. Horatia Eden, of Rugby. Begun in 1848 at Hastings, this important collection was constantly added to during the life of the accomplished author of the "British Seaweeds." Moreover, Miss Catherine Cutley, of Exmouth, a well-known algologist, Prof. W. Harvey, Prof. Agardh, and others, largely increased its value by liberal donations. The collection is arranged, though not completely, according to Prof. Harvey's "Index Generum Algarum," and is accompanied by a valuable series of books of reference, many of them finely illustrated, by Greville, Harvey, Turner, Agardh, J. E. Gray, Frauenfeld, Mrs. Gatty, and others. The foregoing, with the collections of algæ by Mrs. McIntosh, Charles Howie, W. Knight, Dr. Drummond, &c., previously in the laboratory, will, with the rich living series in the bay, give workers in algology facilities of no ordinary kind.

THE King will open the new buildings of University College School, in Frognal, Hampstead, on Friday, July 26.

THE Right Hon. Ailwyn Fellows will distribute the diplomas and prizes on Wednesday, July 24, at the South-Eastern Agricultural College, Wye, Kent.

DR. S. G. RAWSON has been appointed principal of the Battersea Polytechnic in succession to Mr. Sidney H. Wells, who has been principal since the foundation of the institute in 1893, and is resigning to take up the position of director-general of the Department of Agriculture and Technical Education for Egypt. Dr. Rawson is at present director of education for Worcestershire, and was formerly principal of the Technical College, Huddersfield, and lecturer at Liverpool University.

A COMMITTEE has been appointed by the Treasury to inquire and report upon the character of the work accomplished by the University of Wales and its constituent colleges, the financial position and lines of development of the colleges, and their probable requirements for staff or otherwise. The members of the committee are:—Sir T. Paley, K.C.S.G. (chairman); Sir John Rhys, Principal of Jesus College, Oxford; Principal D. MacAlister, Glasgow University; Mr. F. G. Ogilvie, C.B.; Prof. W. S. McCormick; and Dr. Alexander Hill, Master of Downing College, Cambridge. Mr. G. L. Barstow, of the Treasury, will act as secretary to the committee.

THE Board of Education has issued its regulations for next session in connection with the work of technical schools, schools of art, and other day and evening schools and classes for further education. A prefatory memorandum directs attention to the changes introduced; but, before enumerating these, some remarks are made on the general condition of the work of the schools concerned. The experience of towns which have provided systematic and graded courses of instruction shows that a good supply of well-considered educational facilities may be made to foster a demand for these advantages without the application of compulsion in the matter of attendance. Another interesting fact is to find it specifically stated that it is regarded as one of the functions of the Board's inspectors to advise educational authorities, where evening and other schools are not so popular as they might be, as to the changes which would probably lead to improvement and to inform them where successful schools may be found. A note has been added to the regulations with the object of making clear to local authorities that the classification of subjects and courses is in no sense a restriction upon the free adjustment of the subject-matter and methods of instruction in any class to the particular circumstances of the students. The necessity for keeping rural interests well in view throughout all educational work in country districts is now fully recognised, and the continuing need for Saturday and holiday courses for teachers who desire to improve their qualifications for duty in such areas is again pointed out.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 2.—"The Spontaneous Crystallisation of Binary Mixtures. Experiments on Salol and Betol." By Prof. H. A. Miers, F.R.S., and Miss F. Isaac.

The authors have inferred from their experiments upon certain salts that a cooling supersaturated solution can at first only be made to crystallise by inoculation with a crystal of the solute, until a perfectly definite temperature is attained at which a mechanical stimulus, e.g. shaking or friction, will suffice to produce crystallisation. The temperature of this "spontaneous crystallisation" depends upon the strength of the solution as determined by a curve which they name the "supersolubility curve." They have now traced the complete freezing-point curve, and also the supersolubility curves for mixtures in all proportions of salol and betol, choosing these substances merely because they melt at convenient temperatures and do not form compounds or isomorphous mixtures. Salol melts at 42½°, betol at 92°. The eutectic contains 78 per cent. salol, and freezes at 32½° by inoculation only.

Salol freezes spontaneously at 33°, betol at 79°; the supersolubility curves of their mixtures meet in the "hypertectic" mixture, containing 74 per cent. salol, for which the two substances freeze together spontaneously at 15°.

The freezing-point curve was determined by immersing a minute crystal in the cooling liquid and noting the temperature at which it just ceased to dissolve and began to grow.

The temperatures of spontaneous crystallisation were determined (1) by the crystallisation of the liquid on shaking or scratching when enclosed in a sealed tube, and also (2) by the dense shower of crystals which appears at the same temperature when the liquid is stirred in an open vessel.