F. Schlesinger, Allegheny Observatory, Allegheny, Pa.; *Section B*, A. D. Cole, Ohio State University, Columbus, Ohio; *Section C*, A. A. Noyes, Massachusetts Institute of Technology, Boston, Mass.; *Section D*, O. P. Hood, U.S. Bureau of Mines, Washington, D.C.; *Section E*, J. S. Diller, U.S. Geological Survey, Washington, D.C.; *Section F*, A. G. Mayer, Carnegie Institution of Washington, Washington, D.C.; *Section G*, H. C. Cowles, University of Chicago, Chicago, Illinois; *Section H*, W. B. Pillsbury, University of Michigan, Ann Arbor, Michigan; *Section I* (no election); *Section K* (no election); *Section L*, P. P. Claxton, U.S. Commissioner of Education, Washington, D.C. General secretary, H. W. Springsteen, Western Reserve University, Cleveland, Ohio; secretary of the council, W. A. Worsham, jun., University of Georgia, Athens, Georgia.

The following are the new secretaries of the sections elected for five-year terms:—*Section A*, F. R. Moulton, University of Chicago, Chicago, Illinois; *Section B* W. J. Humphreys, Weather Bureau, U.S. Department of Agriculture, Washington, D.C.; *Section C* (no election); *Section D*, A. H. Blanchard, Columbia University, New York, N.Y.; *Section E*, G. F. Kay, Iowa State University, Iowa City, Iowa; *Section F*, H. V. Neal, Knox College, Galesbury, Illinois; *Section G*, W. J. V. Osterhout, Harvard University, Cambridge, Mass.; *Section H*, G. G. MacCurdy, Yale University, New Haven, Conn.; *Section I*, S. C. Loomis, New Haven, Conn.; *Section K* (no election); *Section L*, S. A. Courtis, Home and Day School, Detroit, Michigan.

SCIENCE AT RECENT EDUCATIONAL CONFERENCES.

TWENTY conferences were held in London during the first fortnight of this month, but we need only refer to the proceedings of the Public School Science-masters, the Teachers' Guild, the Assistant-mistresses, the Domestic Science Teachers, and the London County Council Conference of Teachers. It is true that the Headmasters' Conference met in December; but it is a remarkable fact that although individually the members are men of great force directed with earnestness, the vectorial addition of their forces when combined in conference yields a resultant which tends to zero. As their proceedings have no direct bearing upon science teaching, no further reference need be made to them here.

The usual meetings of the Association of Public School Science-masters (A.P.S.S.M.) were held at the London Day Training College, and were preluded by four lectures given by Dr. T. P. Nunn on the theory of science teaching, with special reference to the conditions in boys' schools. Dr. Nunn held that the aim of science teaching was to take the pupil along one of the main roads of human progress. The disciplinary value of science teaching was that they were treading the pathways of great minds, the function of the school being to bring the pupil into sympathetic relation with the character of human effort. He went on to deal with the characteristics of scientific method at different stages of its development; with the nature of induction and deduction, postulate, hypothesis, law and principle. The correlation of science with mathematics and other branches of the school curriculum was illustrated by applying the principles advocated to particular topics, and the skill and ingenuity of the applications were warmly applauded by an audience composed of experienced science-masters.

The main meeting opened with a presidential address by Sir Archibald Geikie, Pres.R.S., who gave a retrospect based on his personal observation of the progress of science in public schools during the last sixty years. An abridgment of the address was published in NATURE of January 16.

The first afternoon was devoted to the discussion of the aims and uses of school science societies, and the topics were assigned to opening speakers, who gave in each case a very useful account of the practical management on which success largely depends. General principles and methods were discussed, and next the subjects of field work in zoology and geology. The possibilities of a school astronomical society were brought forward by Mr. G. Hewlett (Rugby), and the Dulwich College Photographic Society was described with reference to details of organisation. It is a striking indication of the spirit animating members of the A.P.S.S.M. that no mention was made of the large amount of voluntary work which these societies place on the shoulders of the busy science-master; this voluntary burden is accepted as a matter of course, and nothing said. One who is merely an onlooker may direct attention to this spirit.

The discussion on practical examinations in science was unsatisfying. Mr. Berridge made some good points in his censure of the weaknesses of examiners; but the objections to abolishing practical examinations of matriculation (or lower) standard lacked a spokesman. Probably some profit would accrue to the crammer—at the expense of the schools. Mr. Berridge's suggestion that "a certificate from some responsible person, stating that a given number of hours have been spent in practical work, should be exacted from all candidates before they are allowed to sit for a paper in science," may be intended as a safeguard, but its operation is uncertain. It would be much easier for examining authorities merely to drop practical examinations, and there is a danger that this may be done without requiring Mr. Berridge's certificate. No resolution was put before the meeting, and the time for discussion was too short.

Valuable papers were submitted on the teaching of mechanics by Mr. A. W. Siddons (Harrow), Mr. C. E. Ashford (Dartmouth), and Mr. W. J. Dobbs. All advocated procedure from experiment and intuition to theory of increasing rigour; from concrete to abstract. The outcome of the discussions during recent years at the A.P.S.S.M. and the Mathematical Association will be, we hope, that the experimental and logical treatment will be unified. Formerly boys learnt "mechanics" in the mathematical class-room under one teacher, and another subject, also called "mechanics," in the physical laboratory, without correlation. We have got as far as correlation, and are now hoping for unity. Mr. G. F. Daniell urged that the teaching of density should be put into the background, and that specific volume should be given priority. He proposed the term "roomage" (already used in the Navy) in place of specific volume. The suggestions were favourably received. The value of the historical sequence in teaching chemistry was urged by the Rev. T. J. Kirkland. Mr. W. D. Eggar drew an amusing sketch of the historical sequence in electricity, but put in a strong plea for employing the method in leading the student to understand the work of Galileo, Pascal, and Newton. He claimed that to trace the development of ideas which culminated in Newton's discoveries was to open a new vista in the intellectual outlook, and ought to form part of any liberal education.

The association continues to increase in membership, and has just originated a useful piece of work by publishing a selected list of science books suitable for school libraries. There was the usual admirable exhibition of apparatus, the influence of which extends

beyond the limits of the meeting and of the association. The Mathematical Association met in the same building, and it was unfortunate that arrangements were not made so that the two presidential addresses at least could be attended by members of both associations. Good service has been done by the Teachers' Guild, on the initiative of which thirteen associations met by agreement in the University of London and had a kind of British Association week of meetings. At one of the guild meetings Miss Sheavyn directed attention to the mode of entry into the higher grades of the Civil Service. Of the first hundred in the last competition fifty-nine scored chiefly in classics, twenty-nine in mathematics, and twelve in other subjects. (One gathers that science is not wanted or that proficiency in science is not esteemed as evidence of mental culture.) Miss Sheavyn regretted that in technical posts requiring qualifications in science, *e.g.* posts at the British Museum, the question of opening them to suitable women should not be considered, notwithstanding the difficulty experienced at times in getting applicants.

Miss L. M. Drummond, in her presidential address to the Assistant-mistresses in Public Secondary Schools, discussed "the scientific study of living things as an element in education." She said that they were urged by social reformers to teach girls certain definite biological facts, notably those of human physiology and reproduction; but there was too little appeal for real training in biological thought. In this age people did not set as high a value as they should on the energising power of ideas. Some knowledge of a living body was valuable, but she did not think it followed that a course of human physiology should always be introduced. If the school course included animal anatomy, more definite physiological teaching would find a natural place, and on such a foundation she would base teaching in hygiene. Training in scientific biology was a real and helpful preparation for entering sympathetically into the thought-life of the time.

A somewhat different line of argument was taken by Prof. Starling at the L.C.C. Conference. We hope to refer to this in a future article, to which also we postpone consideration of the discussion at the Association of Teachers in Domestic Subjects.

G. F. DANIELL.

PRIZES PROPOSED BY THE PARIS ACADEMY OF SCIENCES FOR 1914.

GEOMETRY.—The Francœur prize (1000 francs), for discoveries or works useful to the progress of pure and applied mathematics; grand prize of the mathematical sciences (3000 francs), for an improvement in the theory of functions of one variable which are susceptible of representations by trigonometrical series of several arguments, linear functions of this variable; Poncelet prize (2000 francs), for work in pure mathematics.

Mechanics.—Montyon prize (700 francs), for the invention or improvement of instruments useful to the progress of agriculture, the mechanical arts, or sciences; Henri de Garville prize (1500 francs), for original work in mechanics; Fourneyron prize (1000 francs), for a theoretical and experimental study of the question of combustion of explosion turbines.

Navigation.—The extraordinary prize of 6000 francs, as a recompense for work increasing the efficiency of the French naval forces; Plumey prize (4000 francs), for improvements or inventions contributing to the progress of steam navigation.

Astronomy.—The Lalande prize (540 francs), for the most interesting observation, memoir or work useful to the progress of astronomy; the Valz prize (460 francs), for the most interesting astronomical observation during the year; the Janssen prize (a gold medal), for a discovery or work representing an important advance in physical astronomy; the Damoiseau prize (2000 francs), for an improvement in Le Verrier's tables of Jupiter.

Geography.—The Tchihatchef prize (3000 francs), for the encouragement of naturalists of any nationality who have made explorations in the lesser-known parts of Asia; the Gay prize (1500 francs), for a study of the distribution of hydraulic forces in a mountainous region, with a description of the methods and instruments employed in this research; the Binoux prize (2000 francs), for work on geography; the Delalande Guérineau prize (1000 francs).

Physics.—The Hébert prize (1000 francs), for a treatise or discovery extending the practical use of electricity; the Hughes prize (2500 francs), for work contributing to the progress of physics; the Victor Raulin prize (1500 francs), for facilitating the publication of works relating to meteorology and physics of the globe; the La Caze prize (10,000 francs), to the author of works or memoirs contributing to the progress of physics.

Chemistry.—The Jecker prize (10,000 francs), for work in organic chemistry; the Cahours prize (3000 francs), for the encouragement of young workers in chemistry; the Montyon prize (unhealthy trades, a prize of 2500 francs and a mention of 1500 francs), for work rendering an art or trade less unhealthy; the L. La Caze prize (10,000 francs), for work in the field of chemistry.

Mineralogy and Geology.—The Fontannes prize (2000 francs), for a palæontological publication.

Botany.—The Desmazières prize (1600 francs), for a work on Cryptogams; the Montagne prize (1500 francs), for researches on the anatomy, physiology, development, and description of the lower Cryptogams; the De Coincy prize (900 francs), for a work on Phanerogams.

Anatomy and Zoology.—The Savigny prize (1500 francs), for the assistance of young travelling zoologists, not receiving Government aid, who occupy themselves with the invertebrates of Egypt and Syria; the Thore prize (200 francs), for the best work on the habits and anatomy of a species of European insect; the Cuvier prize (1500 francs), for a work on zoological palæontology, comparative anatomy, or zoology.

Medicine and Surgery.—The Montyon prize (2500 francs, mentions of 1500 francs); the Barbier prize (2000 francs), for a valuable discovery in surgical, medical, or pharmaceutical science, or in botany having relation to medicine; the Bréant prize (100,000 francs), for a means of curing Asiatic cholera; the Godard prize (1000 francs), for a memoir on the anatomy, physiology, and pathology of the genito-urinary organs; the Baron Larrey prize (750 francs), to a naval or army surgeon or doctor, for a work dealing with military medicine, surgery, or hygiene; the Bellion prize (1400 francs); the Mège prize (10,000 francs).

Physiology.—The Montyon prize (750 francs), for work in experimental physiology; the Philipeaux prize (900 francs), for the same; the Lallemand prize (1800 francs), for work relative to the nervous system; the Pourat prize (1000 francs), for a memoir on the origin of the anti-ferments; the L. La Caze prize (10,000 francs), for a work on physiology; the Martin-Damourette prize (1400 francs), for a work on therapeutic physiology.

Statistics.—The Montyon prize (1000 francs, two mentions of 500 francs).