PRIZE AWARDS OF THE PARIS ACADEMY OF SCIENCES.

AT the annual public meeting on December 22, M. Léon Guignard in the chair, the prizes awarded in 1919 were announced as follows:—

Mathematics.—The Bordin prize to Salomon Lefschetz; the Francœur prize to Georges Giraud, for his work on automorph functions.

Mechanics.—The Montyon prize to Albert Herdner, for his work on the construction and working of locomotives; the Poncelet prize to Gen. Prosper Charbonnier, for the whole of his work on ballistics.

Astronomy.—The Lalande prize to Vesto Melvin Slipher, for his work at the Lowell Observatory, especially his researches on nebulæ and star clusters; the Benjamin Valz prize to Félix Boquet, for his work at the Paris Observatory; the G. de Pontécoulant prize to Arthur Stanley Eddington, for his studies of stellar movements.

Geography.—The Gay prize to René Chudeau, for his explorations in Western Africa; the Tchihatchef prize to E. C. Abendanon, for his book entitled "Expédition de la Célèbes centrale."

Navigation.—The prize of 6000 francs between Yves Le Prieur and Georges Sugot; the Plumey prize between Georges Radot (1500 francs), for his experimental researches on the longitudinal flexure of ships, Maurice Poincet (1500 francs), for his theoretical and experimental researches on the blades of steam turbines, and Alfred Schwartz (1000 francs), for his work as a whole.

Physics.—The Kastner-Boursault prize to Marius Latour, for his researches on electric motors; the Gaston Planté prize to Emile Bryliński, for his work in applied electricity; the Hébert prize to Raymond Jouaust, for his work on magnetism, electrical standards, photometry, and wireless telegraphy; the De Parville prize to Louis Décombe, for his work in various branches of physics; the Hughes prize to Henri Chaumat, for his work on the industrial production of ozone, the electrolytic reduction of indigo and other dyes, and other work in electrotechnics; the Pierson-Perrin prize to Georges Sagnac, for his work on the secondary X-rays, interference, and other optical phenomena; the Clément Félix foundation to Charles Féry, to enable him to continue his experiments on the production of a small dry accumulator.

Chemistry.—The Montyon prize (Unhealthy Trades) to Georges Rivat (2500 francs), for his work on the analysis and absorption of asphyxiating gases; an honourable mention to Arnold Lassieur (1500 francs), for his contribution to the identification of the substances contained in the German poison shells; an honourable mention (1000 francs) to Cyrille Toussaint, for his chemical studies connected with the war; the Jecker prize between Ernest Fourneau (5000 francs), for his services relating to the synthetical preparation of medicinal organic compounds, Louis Maillard (2500 francs), for the whole of his work in organic chemistry, and Marcel Sommelet (2500 francs), for his researches on the ether oxides, the homologues of benzyl chloride, alcohols, and aldehydes; the Cahours foundation divided equally between Georges Mignonac and Marcel Murat, for their work in organic chemistry; the Houzeau prize to René Locquin, for similar researches.

Mineralogy and Geology.—The Delesse prize to Frédéric Roman, for his geological and palæontological work; the Victor Roulin prize to Léonce Joleaud, for the whole of his work; the Joseph Labbé prize to Pierre Pruvost, for his studies on the Coal Measures of Northern France.

Botany.—The Montagne prize between Fernand Moreau (1000 francs) and Gabriel Arnaud (500 francs); the Jean Thore prize to Auguste Sartory, for his publications on cryptogamic botany; the De Coincy prize to C. Houard, for his work on the cecidology of European Phanerogams; the Jean de Rufz de Lavison prize to Raoul Combes, for his researches on the absorption of glucosides by plants and on plant pigments.

Anatomy and Zoology.—The Cuvier prize to J. Jolly, for his work in histology; the Savigny prize to Louis Boutan, for his botanical and zoological studies in the Red Sea and Indo-China.

Medicine and Surgery.—Montyon prizes to Michel Weinberg and Pierre Seguin (2500 francs), for their memoir on gas gangrene; Louis Martin and Auguste Pettit (2500 francs), for their memoir on icterohæmorrhagic spirochætosis; Henri Rouvillois, Guillaume Louis, Albert Pédeprade, and Antoine Basset (2500 francs), for their studies on war surgery. Honourable mentions (1500 francs) to Jean Fiolle and Jean Delmas, for their book on the discovery of the deeper vessels; to Alfred Boquet and L. Nègre, for their work on epizootic lymphangitis; and to H. Gougerot, for his work relating to venereal diseases. The Barbier prize to Albert Goris, for his work on the localisation of glucosides in plants and on the preparation of catgut for surgical purposes; the Bréant prize (arrears) to Paul Ravaut (3000 francs), for his researches on malaria, and to Lucien Camus (2000 francs), for his researches on infection and vaccinal immunity; the Godard prize to Albert Pézard, for his researches on the genital glands; the Chaussier prize between Albert Dustin (3000 francs), for his studies relating to neurology, embryology, and histology, Marcel Frois and Barthélemy Caubet (3000 francs), for a memoir on fatigue in industrial work, Adrien Grigaut (3000 francs), for his memoir on new chemical methods in pathology and their results, and Hector Marichelle (1000 francs), for his researches on the mode of production of speech sounds; the Mège prize (encouragement of 300 francs) to Jules Glover; the Bellion prize to the late Georges Demeny, for the whole of his work, and a very honourable mention to Humbert Boucher; the Baron Larrey prize to Camille Lian, for his memoir on the cardiac troubles of soldiers; the Argut prize to Robert Pierret, and a citation to Victor Raymond and Jacques Parisot, for their memoir on trench-foot.

Physiology.—The Montyon prize to Robert Lévy, for his work on the toxins of genital products of certain animals; the Lallemand prize to Léon Binet, for his monograph on trembling, and a very honourable citation to E. Couvreur and E. Duroux, for their work on nerve-lesions, and to André Léri, for his memoir on war-shock and emotions; the Philipeaux prize to Mme. Lucie Randoin-Fandard, for her researches on blood-sugar; the Fanny Emden prize to Léon Chevreuil, for his memoir on existence after death.

Statistics.—The Montyon prize to Arthur Chervin, for his book on Germany of to-morrow.

History and Philosophy of the Sciences.—The Binoux prize to the late René Larger, for his publications on the extinction of species by degenerescence and the theory of counter-evolution or degenerescence by pathological heredity.

Medals.—The Berthelot medal to Georges Rivat, Louis Maillard, Marcel Sommelet, and René Locquin.

General Prizes.—Grand prize of the physical sciences to Louis Roule, for his researches on the migrations of fishes; Petit d'Ormoy prize to Henri Lebesgue, for his mathematical works; the Estrade Delcros prize to H. Perrier de la Bathie, for his scientific work in Madagascar; the J. J. Berger prize between Paul Juillerat and Emile Gérards; the Saintour prize to Eugène Pagézy, for his anti-aircraft work; the H. de

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Parville prize between Héloïs Ollivier (1500 francs), for his course of general physics, and Adrien Loir and H. Legangneux (1500 francs), for their work entitled "The Products of the Sea"; the Lonchampt prize to Camille Delezenne, for his work on the presence and *rôle* of zinc in animals; the Henry Wilde prize between Jean Rey (1000 francs), for his researches on projectors, and Adrien Bochet (1000 francs), for his mechanical and optical inventions; the Thorlet prize to Adolphe Richard, for his catalogue of scientific books in the libraries of Paris.

Special Foundations.—The Lannelongue foundation to Mme. Cusco and Mme. Ruck.

The Laplace prize to Robert Henri Le Besnerais, Maurice Victor Duruy, and the late Charles Marie Carcopino-Tusoli; the L. E. Rivot prize to Robert Le Besnerais and Maurice Duruy (each 750 francs), Louis Delmas and Henri Pagezy (each 500 francs), Joseph Fontaine and Albert Masselin (each 750 francs), Robert Besse and Henri Lang (each 500 francs).

Foundations for Scientific Researches.—The Gegner foundation to René Baire, for his work on the general theory of functions; the Charles Bouchard foundation to Jean Camus, for the continuation of his work on nerve reactions, the regeneration of nerves, and the effect of various poisons on the nerve-centres.

[*Note.*—As in former years, the Bonaparte and Loutreuil foundations have been omitted, and will be dealt with in a separate article.]

EDUCATIONAL CONFERENCES.

THE eighth annual Conference of Educational Associations was held at University College, London, on December 31–January 10. Three tendencies could be observed in the lengthy list of lectures and discussions arranged for this well-attended conference: the preparation of the citizen, testing for capacity, and care for the artistic side of life. The Master of Balliol took "The Education of the Citizen" as his topic before the Training College Association, while to the Assistant Mistresses' Association Mr. Evan Hughes lectured on "The Importance of a Wider Knowledge of Economic Principles." Under this head, too, came a discussion of continuation schools and their possibilities. Sir William Ashley, in presiding at a joint conference on this topic, emphasised the difficulty of forecasting the labour demand of different occupations, and of anticipating the place that skill would occupy within any one industry. Mr. Spurley Hey, Director of Education, Manchester, found his difficulties in the provision of buildings and teachers, and was critical of works schools; whilst Mr. Beresford Ingram was more distressed by the problem presented by the small employer. The Civic Education League also took up this question in a discussion on education and industry, which largely turned upon the problem of the works school, and, in conjunction with the Infant Welfare Association, arranged a course of twelve lectures dealing very thoroughly with the whole question of infant care and child nurture.

Eugenics entered into this course, but was more specifically treated by Dr. R. Douglas Laurie, who lectured on "Eugenics Education in the Training College," and at a later session on "Eugenics Education in the School," before the Eugenics Education Society. He would not allow the feeble-minded criminal to hand down his qualities, or the aggravated pauper to pass on his inherent pauperism; and the question of deaf-mutes and epileptics should be considered. The eugenic point of view should be part of the mental constitution of every normal citizen, and to this end he would have some measure of biological training given to every boy or girl. This should begin with Nature-study, develop into physiology, and then into hygiene, which should lead on to eugenics.

A correlative of such teaching was to be found in a brilliant lecture by Dr. Olive Wheeler to the Assistant Mistresses' Association on "New Views of Human Personality." Dr. Wheeler contrasted the mechanistic tendencies of the nineteenth century with those of a more idealistic character which were becoming current in the twentieth. This change she traced largely to the development of modern biology and psychology. The child was born with certain dynamic forces: the instincts as described by McDougall, the appetites as outlined by Drever. These powerful impulses needed expression; if repressed, they still existed in the realm of the unconscious, and continued to influence conduct. Attention was directed to Bergson's view that the essential difference between a living organism and a machine was the power of creation and the importance he attached to that modification in the "urge," or dynamic flux, which caused an organism to move in a specific direction.

The problem of testing capacity was first raised by Mr. G. F. Daniell, of the Kent Education Department, in opening the discussion on "The Selection of Elementary Children for Higher Forms of Education." Mr. Daniell favoured a preliminary examination in the elementary schools of pupils between ten and twelve years of age, by which some would be selected for a final examination, to consist of written tests in English and arithmetic. The teacher's report and the school record should be considered, and an interview arranged in at least all doubtful cases. Psychological tests he held to be useful and valuable in this connection, and he thought that careful inquiry did not support the view that the largely written character of the examination excluded from the secondary schools all who were gifted in artistic work and craftsmanship, though it would be well to include in the examination a test of such ability, could one be devised that was both satisfactory and easily applied.

The question of psychological tests was dealt with by Dr. P. B. Ballard in his lecture on "The Measurement of Practical Ability" before the Educational Handwork Association. Dr. Ballard's incidental exhibition of the well-known tapping machine for testing innate motor ability was largely reported in the Press, and equally misunderstood. The whole subject was treated more fully in his lecture on the following Monday to the British Psychological Society on "The Development of Mental Tests," one of the most successful and largely attended meetings of the conference. He pointed out that the history of mental testing was, in the main, an attempt to introduce mathematics into the solution of the problem of the selection of ability. The earliest attempts were in the direction of finding some physical correlate of mind, as in the phrenology of Gall, the physiognomy of Lavater, and the criminology of Lombroso. But neither such static measurements, nor the later applied dynamic measurements of motor response to stimulus, gave results that were valid beyond their own sphere. They had passed from the physical to the psycho-physical, and were now reaching out to the psychical tests. But success in securing standardised tests and measurements depended upon three mathematical conceptions: that of a definite scale for the measurement of intelligence first devised by Binet, much abused but much used; that of the law of normal distribution enunciated by Quetelet, but first applied to mental traits by Galton; and that of the doctrine of correlation, suggested also by Galton, but elaborated by Prof. Karl Pearson and by Prof. Spearman. The same subject received further treatment by Prof. John Adams in a lecture on "Tests

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