

PRIZE AWARDS OF THE PARIS
ACADEMY OF SCIENCES, 1917.

Mathematics.—The Francœur prize to Henri Villat, for his work in hydrodynamics; the Bordin prize to Gaston Julia, for his memoir on the arithmetical theory of non-quadratic forms.

Mechanics.—The Montyon prize to René de Sausure; the Poncelet prize to Jules Andrade, for his work in applied mechanics, especially that dealing with chronometry.

Astronomy.—The Lalande prize to Robert Jonckheere, for his work on double stars; the Valz prize to Alexandre Schaumasse, for the discovery of the comet 1917b.

Geography.—The Gay prize to Henri Jumelle, for his books and memoirs on the geographical distribution of plants of economic value; the Tchihatchef foundation to Sir Mark Aurel Stein, for his explorations in Central Asia.

Navigation.—The prize of 6000 francs between Camille Tissot (4000 francs), for his studies of methods of protection in navigation, and G. Sugot (2000 francs), for his studies in theoretical and practical ballistics; the Plumey prize between Georges Sensener and L. Ballif (2000 francs), for their work entitled "Le Combat Aérien," and Edmé Bonneau (2000 francs), for his instrument designed to indicate at any time to aviators the position of their machine with respect to the vertical.

Physics.—The Gaston Planté prize to Henri Armagnat, for his work in the development of the French electrical industry; the Hébert prize to Hyacinthe Guillemot, for his book entitled "Les nouveaux horizons de la Science"; the H. de Parville prize to Charles de Watteville, for his researches on flame spectra and the structure of flame; the Hughes prize to Amédée Guillet, for the whole of his researches in physics.

Chemistry.—Montyon prize (unhealthy trades) to Marius Picon and Marcel Lantenois (2500 francs), for their work on gas masks for use at the front; honourable mentions to Charles Dufraise (1500 francs), for his chemical researches in connection with the war, and Pierre Savès (1000 francs), for his work on protection against asphyxiating gases; the Jecker prize to Emile Blaise, for the whole of his work in organic chemistry; the Cahours prize to Adolphe Lepape, for his work on radio-activity and the rare gases from mineral springs; the Berthelot prize to Gustave Vavon, for his researches on the addition of hydrogen to organic substances with platinum black as the catalyst; the Houzeau prize to (the late) André Sénéchal, for his work on chromium compounds.

Mineralogy and Geology.—The Delesse prize to Louis Gentil, for the whole of his researches in geology and physical geography in northern Africa; the Fontannes prize to Jules-Mathieu Lambert, for his palæontological work; the Victor Raulin prize to Léon de Lamothe, for the whole of his geological work; the Joseph Labbé prize to Georges Friedel, for his contributions to the geology of the Saint Etienne region; the James Hall prize to (the late) Jean Boussac, for his thesis entitled "Etudes stratigraphiques sur le Nummulitique alpin."

Botany.—The Desmazières prize to Carl Hansen Ostenfeld, for his memoir on the plankton of Danish seas; the Montagne prize to J. Pavillard, for the memoirs entitled "Recherches sur les Diatomées pélagiques du Golfe du Lion" and "Recherches sur les Péridiens du Golfe du Lion"; the Jean Thore prize to Mme. Valentine Moreau, for her memoir on the phenomena of sexuality in the Uredineæ; the de

Coincy prize to André Guillaumin, for his studies in the Burseraceæ; the de Rufz de Lavison prize to Marin Molliard, for his researches in plant physiology.

Anatomy and Zoology.—The Cuvier prize (in equal parts) between Ph. Dautzenberg and Paul Pelseneer, for their researches on molluscs; the Savigny prize to R. Jeannel, for his zoological exploration (with Ch. Allaud) in eastern Africa.

Medicine and Surgery.—Montyon prizes to Hippolyte Morestin (2500 francs), for his autoplasmic work on the wounded, Ed. Delorme (2500 francs), for his researches relative to decalcification following war wounds, and Auguste Pettit (2500 francs), for his researches relating to the mode of action of various micro-organisms on the anatomical elements; three mentions (1500 francs each) to Léon Imbert and Pierre Réal, for their work on maxillo-facial surgery, to F. Rathery, L. Ambard, P. Vansteenberghé, and R. Michel, for their work entitled "Les fièvres paratyphoïdes B à l'hôpital mixte de Zuydcoote de Décembre, 1914, à Février, 1916," and to Giuseppe Favaro, for a work entitled "Ricerche intorno al cuore dei vertebrati." The Barbier prize to E. Weill and Georges Mouriquand, for their researches on vitamins; from the funds of the Bréant prize 2000 francs to Jean Danyasz, for his researches on the arsenobenzenes, 2000 francs to H. Gougerot, for his researches in dermatology, and 1000 francs to Maurice Courtois-Suffit and René Giroux, for their work entitled "Les formes anormales du tétanos"; the Bellion prize to Paul Fabre-Domergue, for his work on a practical method of sterilising oysters; the Baron Larrey prize to P. Chavigny, for his memoir on voluntary mutilations by firearms; honourable mentions to Léon Binet, for his work, "Le guide du médecin aux tranchées," and to André Tournade, for his work, "La pratique de l'hygiène en campagne."

Physiology.—The Montyon prize to Gabriel Foucher, for his memoir entitled "Etudes biologiques sur quelques Orthoptères"; the Lallemand prize to J. Tinel, for his work on lesions of the peripheral nerves; a very honourable mention to Stephen Chauvet, for his memoir, "Infantilisme hypophysaire"; the Pourat prize to Henri Bierry and Albert Ranc, for their work on free and combined glycose in the blood; the Philipeaux prize to Georges Stodel.

Statistics.—Montyon prizes to Henri Abraham and Paul Sacerdote (1000 francs), for the "Recueil de constantes physiques," and a mention (500 francs) to Jules Delobel, for his researches relating to the protection of infants.

History and Philosophy of the Sciences.—The Binoux prize to F. Gomes Teixeira, for his "Obras sobre mathematica," and an honourable mention to Albert Bordeaux, for his "Histoire des sciences physiques chimiques et géologiques au XIX^e siècle."

Medals.—The Berthelot medal to Marius Picon and Marcel Lantenois, and to Gustave Vavon.

General Prizes.—The Grand Prize of the Physical Sciences to Emile Roubaud, for his work on pathogenic trypanosomes; the Serres prize to Jean Eugène Bataillon, for his work on experimental embryogeny; the Petit d'Ormy prize (pure or applied mathematics) to Pierre Duhem, for the whole of his work, and especially for his memoir entitled "Le Système du monde: Histoire des doctrines cosmologiques de Platon à Copernic"; the Petit d'Ormy prize (natural sciences) to (the late) Henry Dufet, for his work in crystallography; the Saintour prize to Henri Lebesgue, for his studies on the principles of the infinitesimal calculus; the Henri de Parville prize between Charles de la Vallée Poussin (2000 francs), for his mathematical works, D. Bois (1000 francs), for his works dealing

with the horticulture and popularisation of colonial plant products, and N. Lallié (500 francs), for his book, "Les moteurs agricoles"; the Henry Wilde prize between A. Claude (2000 francs), for his researches in astronomy and physics, and Georges Sagnac (2000 francs), for an apparatus useful in national defence; the Gustave Roux prize to Joseph Guyot, for his contributions to physics; the Thorlet prize to Adolph Richard, for his work in connection with catalogues of scientific periodicals in Paris libraries. The Lannelongue foundation is divided between Mmes. Cusco and Rück; the Trémont foundation (1000 francs) to Charles Frémont, for his researches on the working of metals; the Gegner foundation to Ferdinand Gonnard, for his work in crystallography and mineralogy; the Henri Becquerel foundation to (the late) Bernard Collin (1500 francs).

The Vaillant, Fourneyron, Pierson-Perrin, Damoiseau, Pierre Guzman, G. de Pontécoulant, Bréant, Godard, Mège Argut, Fanny Emden, Alhumbert, Lonchamp, Laplace, Rivot, and Normal School prizes were not awarded this year.

COMMITTEE ON THE CHEMICAL TRADE.

THE Committee appointed by the Minister of Reconstruction to advise as to the procedure which should be adopted for dealing with the chemical trade has now concluded its deliberations and issued its report (Cd. 8882, price 1d. net). The Committee was appointed (1) to advise as to the procedure which should be adopted by the Minister of Reconstruction for dealing with the chemical trade; (2) to consider and report upon any matters affecting the chemical trade which could be more effectively dealt with by the formation of special organisations for the purpose, and to make suggestions in regard to the constitution and functions of any such organisation.

The members of the Committee are:—Sir Keith W. Price (chairman), Mr. John Anderson, Mr. J. F. L. Brunner, Dr. Charles Carpenter, Prof. J. G. Lawn, Sir William Pearce, Mr. K. B. Quinan, the Right Hon. J. W. Wilson, and Mr. G. C. Smallwood (secretary). The report of the Committee is here summarised.

It is evident that during the process of reconstruction numerous difficult problems and questions are likely to arise in connection with the chemical trade. The Committee is of opinion that these can be satisfactorily settled only by the closest collaboration between the Minister of Reconstruction and the representatives of the trade, and it appears to be necessary that the Minister should be in a position to obtain the views both of the trade as a whole and, in the case of particular problems, of that branch of the trade directly concerned.

This end could probably be attained in a satisfactory manner if there were in the chemical trade a representative body, which could advise the Minister and act in a consultative capacity on chemical matters. Such a body should be fully representative of the whole of the trade, and the difficulty of the Committee lies in naming an association which could be said completely to fulfil this condition.

The Committee is of opinion that, in dealing with the chemical trade, the Minister of Reconstruction could properly act in collaboration with the Association of British Chemical Manufacturers. It is further of opinion that with a view to convenience of practical working, and in order to establish the permanent link which should exist between the Ministry and the trade in all its branches, a standing committee should be established fully representative of all the interests concerned.

As to points of reference No. 2, the opinion is expressed that whatever may be the functions of the Ministry of Reconstruction, it will be necessary to establish a section of that department which will be in a position to deal with matters which may arise in connection with the chemical trade. The appointment to the Ministry of Reconstruction of a scientific man of good standing, who would command the respect and confidence of the trade, together with the necessary staff, is suggested. This section, working in conjunction with the standing committee previously mentioned, would provide the Minister with an adequate organisation for dealing with such questions connected with the chemical trade. The following would represent some of the duties of this section:—

(1) To ascertain with the assistance of the standing committee the chief problems which are likely to arise in the process of reconstruction after the war, and the best means of dealing with them. (2) To survey generally the chemical trade, both at home and abroad, and in consultation with the standing committee to afford advice for the broadening and improvement of the chemical trade of this country. (3) To collect and disseminate information on, and statistics of, the chemical trade. (4) To collect and collate as much information as is available on the work which has been done during the present war, which would, no doubt, be of great interest and assistance to the chemical trade as a whole.

The Committee states in the report that it has confined its recommendations within the narrow limits defined by the terms of reference, which speak only of "chemical trade." If, however, for that expression were substituted "the National Chemical Industry," a much broader purview would be involved, and specific reference would be necessary to existing organisations other than those specifically founded for "trade" purposes, among which may be mentioned:—The Society of Chemical Industry, the Government Laboratory, the Committee of the Privy Council for Scientific and Industrial Research, the Imperial Institute, the National Physical Laboratory, and the Chemical Society.

Summary of Recommendations.

1. That in dealing with the problems of the chemical trade action should be taken so far as possible in the closest collaboration with representatives of the trade.
2. That the Association of British Chemical Manufacturers should be considered as representative of the chemical trade as a whole with certain branches excepted.
3. That a standing committee should be appointed. This committee, which should be fully representative of all the interests concerned, would establish a permanent link between the Ministry and the trade.
4. That a departmental organisation should be set up in the Ministry of Reconstruction to deal with chemical questions.

THE PHYSIOLOGY OF LEARNING.¹

IN the hope of throwing fresh light on the obscure problem of what goes on when animals "learn," Mr. Joseph Peterson has tested the effect of altering the length of culs-de-sac in the mazes which white rats were asked to solve on their way to the food-box. There is no doubt that the animals can learn; the question is, What precisely happens? and it is plain that the answer is not going to be easy. Organisms are very complex creatures, and animal behaviour in

¹ "The Effect of Length of Blind Alleys on Maze Learning. An Experiment on Twenty-four White Rats." By Joseph Peterson. Behaviour Monographs, vol. iii., No. 4. Pp. 53. (1917.)