

of their territories. The Congress also decided to recommend that a veterinary survey of Papua and the Australian Mandated Territories should be carried out by the Commonwealth Government under the direction of a veterinary bacteriologist experienced in the tropical diseases of animals.

Zoology.—The Congress adopted resolutions recommending that the investigation and survey of terrestrial and marine fauna and flora of Pacific countries should be carried out. Attention was directed to the fact that many valuable species of marine mammals such as fur seals, sea otters, whales, elephant seals, and dugongs once occurred in various portions of the Pacific, but owing to extremely unwise and wasteful methods of prosecuting these industries, most of these animal resources have been reduced nearly to commercial extinction. There is a strong belief in the possibility of securing the

restoration and perpetuation of many of these useful animals. The Congress recommended that the Pacific nations concerned should make a thorough scientific investigation into the present condition, and should obtain such governmental measures as are necessary for the protection and restoration of the depleted herds and species. The Congress also urged the necessity for the establishment of marine biological stations in such parts of the Pacific coasts as do not already possess them.

As regards the resolutions submitted by the different sections, it was decided that approval of any of these resolutions by the whole Congress should mean approval only of the principle implied, and that the precise wording and the action to be taken in regard to the resolutions should be left to the executive committee of the Australian National Research Council.

The French Physical Society's Exhibition.

INTENDED to commemorate the fiftieth anniversary of the Société Française de Physique, the "Exposition de Physique et de T.S.F." was held in the Grand Palais, Paris, on November 30–December 24. The title chosen for the Exhibition was perhaps a little too modest, a large part of the Exhibition being, in fact, devoted to industries, in the development of which applied physics has played an important rôle. In addition to the purely commercial exhibits, a well-organised experimental physics section enabled the visitor to become acquainted with some of the problems to which research is now directed. Every afternoon demonstrations were given by eminent physicists and a number of college graduates. Amongst a very large number of exhibits, spread over the entire floor and galleries of the Grand Palais, the following may be mentioned:

Historical Section.—An interesting collection of apparatus from various museums, including Fresnel mirror (1788–1827), Jamin circle (1818–1886), Van Marum's friction machine (1797), Ampère's table (1822), Masson's induction coil (1842), Branly's coherer (1890), Turpain's resonator for Morse reception of wireless signals (1894) and recorder (1911), Ferrié's electrolytic detector (1900), Lee de Forest's triodes (1907), Bellini's radiometer (1909).

Experimental Physics Section.—Apparatus for counting α -particles (Laboratoire Curie), Observation of Brownian movement in smoke (de Broglie), "Cellular tourbillons" (Bénard), piezo-electric apparatus for measuring the energy in sound waves in absolute units (Langevin et Ishimoto), apparatus for measuring speed of combustion of explosive powders (de Watteville), electrical deposition of dust, smoke, etc. (Société de Purification Industrielle des Gaz), apparatus showing dilatation and contraction of gelatinous substances due to the passage of an electric current and, inversely, the production of a current by mechanical deformation of the substance (Michaud), electrometer for measuring high potentials utilising the displacement of a liquid dielectric (Michaud), auto-excitation of a 3-phase squirrel-cage motor by the use of condensers (Soulier), remarkable insulating properties of "acroleine" (Mouren), high-power amplifying relay for continuous and low-frequency alternating currents, using stator and rotor windings of a high-speed dynamo (Monnier), differential manometric method for the dosage of carbon dioxide in flue gases (Picard and Laurent), cathode-ray oscillograph (Dufour), molecular vacuum pump (Holweck), dismountable triodes (Holweck), chronometric motor driven mechanically by electrically-maintained tuning fork (Lepaute).

The exhibits of the Bureau International des Poids

et Mesures and the Conservatoire des Arts et Métiers were somewhat disappointing. The former showed a number of standards, including a set of étalons for the absolute measurement of wave-lengths, the latter a small collection of testing appliances. Other state and private testing and research laboratories represented were: Section technique de l'Artillerie (a large and interesting display of instruments), Radiotélégraphie Militaire (wireless installations in tanks, etc.), Service Géographique de l'Armée (examples of map production, geodetic station, surveying instruments), Service de Santé (manufacture of clinical thermometers for army use), Ministère de la Marine (aerial photography for coastal surveys, navigational and signalling instruments), Postes et Télégraphes (Baudot apparatus, automatic wireless, etc.), Observatoire d'Astronomie Physique de Meudon (astronomical photographs), Office National des Inventions (high-frequency furnace, production of photographic portraits in relief, stereoscopic projection apparatus), Laboratoire Central d'Électricité (Blondel-pattern spherical lumen-meter, absolute electro-dynamometer, standard mercury ohm, cadmium cells), Office Central de Chauffe Rationnelle (examples of heat balances, statistics and information relating to heat-economy courses for engineers, works' foremen, etc.), Société Française de Photographie (various testing equipment), Société de Recherches et Perfectionnements Industriels (automatic weighing machines).

Telegraphy and Telephony.—As might be expected, the domestic wireless industry was strongly represented, and a very large choice of excellent receiving sets proved that a host of French manufacturers and amateurs are taking full advantage of their freedom from government restrictions. The Cie. "Radio-France" showed models of the high-power transcontinental stations at Sainte-Assise and Villecresnes. Other interesting exhibits were:—Établissement Éd. Belin: telegraphic transmission of photos, drawings, manuscripts, etc., a public service for which is being given a trial in France from January 1; "L'Infra-rouge" (Procédés Charbonneau): infra-red transmitters and receivers for secret signalling, landing of aircraft in fogs, etc.; Société de Condensation et d'Application Mécaniques: location of submarine objects by "ultra-sound" waves (Langevin-Chilowsky system); Cie. Générale d'Entreprises Électriques: portion (full size) of 150,000-volt transmission system (as installed in connexion with the electrification of the Midi railway and in other parts of France)—the line insulators were supported by girder masts 72 feet high and the lines connected to a battery of distance-operated oil-tank switches, each capable of dealing

normally with 750,000 K.V.A.; Société Alsacienne de Constructions Mécaniques: high-frequency alternators for wireless transmission (32,400 periods/second, 6000 R.P.M.); Ateliers Carpentier: measuring instruments; Szilard: extra-sensitive electrometers for radio-activity and ultra-violet measurements; Étab. GaiFFE-Gallot and Pilon: Dauvillier's absolute dosimeter for X-ray therapy, etc.

Optics.—Jobin and Yvon: flint, quartz, and fluor-spar spectrographs, Fabry-Buisson microphotometer, Yvon spectrophotometer; Beaudouin: Féry spectrographs; Prin: automatically-controlled meridian instrument with 190 mm. telescope and circles 1 metre diameter; Optique et Précision de Levallois: stereoscopic range-finder for anti-aircraft use, range-finders for survey and military purposes, speed recorder for aircraft, photo "machine-gun"; Société d'Optique et de Mécanique: range-finders, surveying instruments, seismograph; interesting exhibits of different light-sources, optics and automatic appliances for lighthouses, searchlights, etc., were shown by the Service des Phares and by the manufacturers Barbier, Bénard, and Turenne, Sautter-Harlé, and the Cie. Générale d'Acétylène.

Photography and Cinematography.—In the section devoted to photography and cinematography, Messrs. Pathé-Cinéma, the Établissements Gaumont, and others, exhibited their latest models of cameras and projectors. Other exhibits were: apparatus for 3-colour cinematography and for vocal synchronisation, micro-photographs in colours of sections of wood for musical instruments, showing degree of ageing.

Metallurgy.—A fully-equipped metallurgical laboratory formed an interesting collective exhibit. Among the exhibitors were: S.A. de Commentry-Fourchambault: invar, elinvar, and other special alloys and their applications, Chevenard's recording dilatometer for the rapid determination of critical points. An instructive set of experiments illustrating the anomalous properties of certain alloys included a "thermo-elastic oscillator," showing the effect of temperature in increasing the elasticity of the alloy "modulvar," a "thermo-magnetic wheel" made of the alloy "N.M.H.G." which becomes a magnetic at 30° C.; Jacob Holtzer: special magnetic steels; Aciéries et Forges de Firminy: electrolytic iron. Progress in electro-metallurgy and in the electro-chemical industries was illustrated by an historical display of furnaces and products by the Comité Électro-Métallurgique de France and other firms. Resistance and arc furnaces of industrial dimensions were shown in operation. Samples of electrically-welded apparatus in steel, aluminium, and other metals were also exhibited.

Glass and Ceramic Industries.—These industries were well represented. Parra Mantois and the Manufacture de St.-Gobain showed a large assortment of optical glass in various forms. Demonstrations of heat-resisting domestic glassware attracted large crowds. The firm of "Quartz et Silice" exhibited chemical apparatus, insulators, lamps, etc., in fused silica.

The Exhibition, which was visited by the President of the Republic and by many high officials, was a great success, and its educational value was appreciated by a large section of the general public. The authorities are to be congratulated on the artistic decorative effects, and especially on the pleasing uniformity of the name-signs. With a very few exceptions, the exhibits were of French manufacture, and one was struck by the vast progress made in recent years in the manufacture of many commodities which were previously imported from Great Britain and other countries. It would be interesting to know to what extent this industrial development has been assisted by the depreciation of the franc.

University and Educational Intelligence.

BRISTOL.—Dr. J. A. Hanley has been appointed as Agricultural Information Officer. Dr. Hanley has been a member of the staff of the University of Leeds since 1915, and is lecturer in agricultural chemistry and advisory chemist in that University.

A Joint Extension Board for the University of Bristol and the University Colleges of Southampton and Exeter has recently been set up which will undertake the arrangement of Extension Lectures over the whole of the south-western counties. The first representatives of the University on the Board are the Vice-Chancellor and the Director of Extra-Mural Studies (Mr. Hubert Phillips).

CAMBRIDGE.—Dr. C. E. Tilley, Emmanuel College, has been appointed demonstrator in petrology. The John Bernard Seely prize has been awarded to A. E. W. Nutt, Gonville and Caius College, for an essay on "Aviation and Commerce."

EDINBURGH.—At the request of the London and North-Eastern Railway, the University has resolved to institute courses of lectures, for the managing and clerical staff of railways, in law, geography, and economics, with special reference to railway requirements, and in railway operating. A course of lectures will be delivered in each of four successive years. The first course of twenty lectures on railway law will begin on January 7.

LONDON.—Prof. G. B. Jeffery, at present professor of mathematics at King's College, has been appointed to the Astor chair of mathematics tenable at University College.

Miss Eleanor M. Scarborough has been appointed to the recently instituted readership in pharmacology tenable at the London School of Medicine for Women. Miss Scarborough was appointed demonstrator in pharmacology at the London School of Medicine for Women in 1919, and since 1921 has been assistant lecturer in that subject at the School.

The degree of D.Lit. has been conferred on Mr. Morris Ginsberg (University College) for a thesis entitled "The Psychology of Society."

Prof. Hugh MacLean has been awarded the William Julius Mickle fellowship (of the value of 200*l.*) for 1924 in respect of the work which he has carried out during the past five years in experimental medicine. This fellowship is awarded annually by the Senate, under the terms of the Mickle bequest, to the man or woman who, being resident in London and a graduate of the University, has done most to advance medical art or science within the preceding five years and has therein shown conspicuous merit.

Mr. Harold Cloughton has been appointed Financial Officer and Secretary to the Senate as from January 1, 1924. He was educated at Radley and at Trinity College, Oxford, graduating with honours in modern history.

DR. J. N. GREENWOOD, of Stocksbridge, near Sheffield, has been appointed to the chair of metallurgy in the University of Melbourne.

THE *Times* of December 28 reports that a fire on December 26 at the Imperial University at Fukuoka, South-Western Japan, destroyed the entire building and the Engineering College. The damage is estimated at 500,000*l.*