

1902 the weed had covered some 8,000 acres, by 1905 more than 10,000 acres, and by 1916 the infested area in Victoria was estimated at 184,000 acres. To-day, Messrs. G. A. Currie and S. Garthside say in their Progress Report on St. John's wort control that the infested area in Victoria alone is estimated variously at 250,000 to 400,000 acres, while smaller areas in New South Wales and South Australia have been occupied by this weed pest.

Chrysomelid Beetles introduced into Australia

In Britain, St. John's wort has not run riot as in Australia, and the supposition is that the beetles named in the preceding paragraph may have played an important part in keeping it within bounds. It seemed possible, therefore, that in Australia these beetles also might prove useful enemies of the introduced weed. Aware that introduced animals have more often proved a curse than a blessing, Dr. R. J. Tillyard and his staff made careful investigations in Great Britain and in Australia to discover whether the St. John's wort beetles were able to survive on plants, particularly plants of economic value, other than the normal food-plant. Adult beetles and larvæ were enclosed with the plant to be tested and were allowed to feed upon it or complete a passive resistance and starve to death. Forty-six plants were tested in England and in no case did the beetles feed upon any.

The way was now clear for the transference of beetles from Britain to Australia, and shipments were begun in 1929 and 1930. There they were bred, and a new series of tests on Australian plants taken in hand. Forty plants were thus tested, and on none did the beetles feed. The beetles were liberated in October 1930 in various places where St. John's wort grew densely, and although survivors of the first liberation were found five months later, it was still too early, when the Report was published in 1932, to say whether the beetles were likely to establish themselves in numbers sufficient to effect destruction of the weed.

Manx Herring Shoals

Herring shoals which begin to arrive in Manx inshore waters in the Irish Sea in May, remain there until September, which sees the end of the fishing period. Herrings which are actually spawning are seldom taken by boats in Manx waters, probably owing to their nets not being deep enough, but offshore, spent fish in goodly numbers are taken from the middle of September onwards. The older fishes, which have spawned in previous years, do not arrive in Manx waters until their gonads are almost ripe, and they spawn during September.

W. C. Smith (Report of the Lancashire Sea Fisheries Laboratory, No. 40; 1931) describes the Manx herring shoals during the seasons of 1929, 1930 and 1931. Inshore migration becomes appreciable in mid-June, although it may be delayed until mid-July, and reaches a maximum at the end of July. Herring do not arrive in the offshore ground until mid-August, where fishing is good for a month. These shoals consist in the main of 'full' herrings more than three years old, with sixth year fish most abundant. It appears certain that a herring spawning ground is situated close to the Calf of Man.

Societies and Academies

LONDON

Institute of Metals (Silver Jubilee Autumn Meeting at Birmingham), September 18-21*. O. F. HUDSON: Wear in the polishing of plated and other surfaces. The following materials, using magnesia on wet parchment as the polishing medium, were examined: pure platinum, pure palladium, platinum plating on brass, palladium plating ('soft', 'hard', and 'burnished') on brass, nickel plating ('soft' and 'hard') on brass, silver plating, and brass (60:40). Considered as loss of thickness, the rate of wear of the palladium-plated specimens was found to be greater than that of the platinum-plated specimens, but considered as loss of weight, the wear of the palladium coatings was slightly less than that of the platinum coatings; whilst the precious metal coatings generally were more resistant than the same metals in massive form. W. HUME-ROTHERY: A graphical method for converting the weight percentage compositions of ternary systems into atomic or molecular percentages. The method is suitable for use where 60° ruled triangular paper is available. It permits the direct transference of a triangular diagram drawn on the weight percentage scale to one in atomic percentages, and the accuracy obtained is of the order 0.1-0.5 per cent, according to the precision of the instruments and of the ruled paper. BRINLEY JONES: Preparation of lead and lead alloys for microscopic examination. Time devoted to preliminary polishing is restricted, the true structure of the metal being revealed by chemical solution of surface layers. After the removal of recrystallised layers, sections may finally be prepared for high-power examination by a treatment of alternate polishing and etching, the final polishing being vigorous. D. G. JONES, L. B. PFEL and W. T. GRIFFITHS: Precipitation-hardening nickel-copper alloys containing aluminium. The properties of nickel-copper-aluminium alloys with nickel contents from 10 to 45 per cent and aluminium contents up to 4 per cent have been investigated. The relationships between composition and capacity for hardening by heat-treatment have been studied by means of hardness tests on the heat-treated specimens. A study has also been made of the most suitable heat-treatments to produce the soft condition, and the stability at elevated temperatures of a selection of the alloys in the precipitation-hardened condition. H. O'NEILL, G. S. FARNHAM and J. F. B. JACKSON: An investigation of the heat-treatment of 'standard silver'. The precipitation-hardening of quenched 'standard silver' (7.25 per cent copper) has been investigated by Meyer hardness analysis. Precision X-ray spectrograms obtained with Cu-radiation from thick disc specimens of the heat-treated alloy indicate that surface preparation may considerably affect the lattice parameter results. Polishing should be avoided in this work, and etching may have bad effects. Quenched 'standard silver' when reheated for 30 minutes in the 300° C. region is in a sensitive condition, and appears to precipitate completely when deformed. If precautions are taken, the lattice parameters indicate a normal progressive precipitation of copper constituent as the quenched alloy is reheated at increasing temperatures. D. STOCKDALE: The constitution of the aluminium-

* Continued from p. 490.

rich aluminium-copper alloys above 400° C. A part of the work of Dix and Richardson on the solubility of copper in aluminium has been repeated and their results have been closely confirmed. A considerable range of solid solutions has been found near the composition CuAl_2 , but no evidence for the existence of the compound CuAl has been obtained. W. H. J. VERNON: Green patina on copper: examples from Elan Valley, Wales, and Dundalk, Ireland. The patina from a copper structure in mid-Wales contained 20.75 per cent basic copper chloride, as compared with 8.15 per cent in the patina from a copper spire at Dundalk, on the east coast of Ireland (approximate ratio 2.5:1); this result is attributed to the influence of prevailing winds. Basic copper sulphate constituted the bulk of the deposit in each case, relationship of formula with period of exposure confirming the conclusions of previous work.

PARIS

Academy of Sciences, August 21 (*C.R.*, 197, 501-540). A. COTTON: The use of coloured indicators for detecting the heterogeneity of alloys. The use of indicators for detecting heterogeneity and resistance to corrosion of alloys described in a recent note by Prot and Goldovsky (*C.R.*, 197, 136) was anticipated by Ch. Quillard six years ago (*C.R.*, 185, 1281). HYACINTHE VINCENT: Anticolibacillus serotherapy. The results of its use in grave gangrenous appendicitis with local or general peritonitis. Acute appendicitis is regarded by the author as an infectious disease with a specific, but as yet unknown, virus. It is concluded that anticolibacillus serotherapy is the necessary complement to the surgical treatment of complicated malignant or toxic cases of appendicitis. L. BLARINGHEM: The habitus of flax in relation to its fecundity and selection. A. DEMOULIN: A class of families of quadrics with two parameters. HELMUT HASSE: Applications to the Abelian case of the theory of normal remainders in Galoisian extensions. G. VAN DER LYN: The existence of approximate integrals of the equation $y' = f(x, y)$. JACQUES VALENSI: The field of velocities behind propulsive aerial helices. MME. G. CAMILLE FLAMMARION and F. QUÉNISSET: The appearance of a white spot on the surface of Saturn. Description of the appearance and position of the spot on August 6. NICOLAS DE KOLOSSOWSKY: Contribution to the thermodynamical theory of liquids. NICOLAS DE KOLOSSOWSKY and W. W. UDOWENKO: The measurement of the molecular specific heats of some liquids. MAX MORAND and A. HAUTOT: New data on the structure of the *K* radiation of very light atoms. Description of results obtained for oxygen, nitrogen, carbon, boron and beryllium. G. JOURAVSKY, P. CHARCZENKO and G. CHOUBERT: The magnetic susceptibility of magnetites from some basic volcanic rocks. J. COULOMB: The discontinuous nature of Love's waves. CLAUDIUS LIMB: The visibility of Mont Blanc from the Fourvière Observatory. MLE. C. BOURDOUIL: Some intermediate characters of the hybrids of the second generation between species of *Pisum* (*P. sativum* with *P. arvense*). ALPHONSE LABBÉ: The presence of siliceous spicules in the teguments of the Oncidiadæ. HARRY PLOTZ: The rôle of the embryonic cells in the culture of the virus of bird plague. CL. REGAUD, G. GRICOUROFF and EUD. VILELA: The formation of a hybrid race of muciparous epidermal cells, during the metaplastic transformation of the epithelium of the uterine canal, which precedes or accompanies cancer formation.

CAPE TOWN

Royal Society of South Africa, June 21. A. ZOOND and JOYCE EYRE: Pigmentary response in the chameleon. In strong diffuse daylight chameleons show a response to background. They become dark on a black background, and pale on a white one. Blind animals darken in the light. This response has been shown to depend upon the integrity of spinal reflex arcs. The threshold for the retinal photoreceptors is lower than for the dermal ones. In weak light the white background response is reversed. The animals become dark. A theory of nervous co-ordination is developed. A. J. HESSE: A study in biocœnosis. The insect fauna dependent or biologically associated with the Western Province plant *Gnidia lara* was studied during spring and summer. No less than seven orders of insects and members of the class Arachnida were found to be directly or indirectly dependent on this plant. The most important insects are discussed. Descriptions of the eggs, larvæ, pupæ and adults are given in detail of most of these insects. I. SCHREIRE and H. ZWARENSTEIN: The effects on the urinary creatinine of normal and castrated rabbits of injections of anterior lobe pituitary extracts. Such injections transiently increase the elimination of creatinine in normal male and female rabbits. In the castrated animals no change is apparent. There is evidence to show that the anterior lobe of the pituitary normally controls the creatinine excretion in the animal and that the hypertrophy of the anterior lobe after castration is responsible for the increased excretion of creatinine in the gonadectomised animals. The metabolism of injected creatinine by normal and castrated male rabbits. Castrated male rabbits excrete the administered creatine to a greater extent and over a longer period than is the case in the normal animals. This is believed to be due to the excess of anterior lobe secretion of the pituitary of the castrated animal.

ROME

Royal National Academy of the Lincei, May 7. F. SEVERI: The theory of the correspondences to valency on an algebraic surface (1): in the projective sense. R. FABIANI and G. PETRUCCI: New geophysical explorations in Sicily: general results and particular data on geomagnetic determinations. A number of regional and local anomalies emerge from the geomagnetic determinations. C. AGOSTINELLI: The orthogonal properties of the natural families of lines of a curved space. U. BROGGI: Repetition of the operation xd/dx . F. CONFORTO: A linear system of equations to partial derivatives integrated by the method of fundamental solutions. M. MANARINI: Rotational of a vector in the spaces S_n . E. GUGINO: The geodetic curvature of the dynamic trajectories of holonomous systems. M. LELLI: Mechanical similitude in the regular motions of viscous liquids. The laws of the similitude between the motions of viscous liquids in large and small systems are considered. G. AGAMENNONE: Considerations on the seismic hypocentres of the Latium hills. N. MORTARA: Experimental investigations on a generator of constant, high tension, continuous currents. The results of tests on the arrangement devised by Corbino are recorded. G. B. FLORIDA: Existence of the Upper Eocene in Cyrenaica. The presence of the Upper Eocene is proved by the discovery of nummulites. Both in Cyrenaica, where various levels are distinguishable, and in Egypt, the Upper Eocene is

characterised by the same association of species, at least in so far as the foraminifera are concerned. G. REVERBERI: Crossing experiments between eggs of *Ciona intestinalis* and sperm of *Phallusia mamillata*. M. MILOLO: Avitaminosis and intoxications (3): Experimental syndrome from avitaminosis A and chemical intoxication from metals and metalloids. Oral administration to rats suffering from avitaminosis A, of a mixture of metallic and non-metallic compounds in doses non-toxic to the normal animals, causes neither acceleration nor inhibition of the effect of the food-deficiency. Moreover, the toxicity of the inorganic compounds is not enhanced under such conditions.

SYDNEY

Royal Society of New South Wales, June 7. G. HARKER: The decomposition of chloroform by radiations from radon. The decomposition produced in different thicknesses of chloroform with filtered and unfiltered radiation from radon has been studied. Excess decomposition is produced near the source with unfiltered radiation but rapidly falls off in amount. Minute traces of impurities greatly influence the decomposition. Expressed in terms of energy, the amounts of X- and Y-radiation necessary for the decomposition of one gram molecule of the same sample of chloroform differ greatly. The figures found were 29·800 calories for X-radiation and 251·300 calories for Y-radiation. E. H. BOOTH and J. M. RAYNER: A magnetic survey in the vicinity of a granite batholith. The paper deals with the north and east of Gulgong, New South Wales. The area covered by the survey is about eighty square miles. The contact is with Silurian (?) slates, the granite probably having intruded in later Devonian times. The contact is buried by about 100 ft. of alluvium, the gradient back to the exposed granite being slight (about 1:100). The contact is steep, the section passing off granite in half a mile or less, once the sharper fall commences. The maximum magnetic anomaly due to the granite is about 800 γ , the slates and soil being practically non-magnetic. A general geological and isodynamic map of the district is given, also six sections, magnetic and geological, across the area. The instruments were 'Askania' vertical magnetometers. The magnetic anomalies along the actual presumed line of contact are not readily interpreted.

Linnean Society of New South Wales, May 31. GERMAINE A. JOPLIN: The petrology of the Hartly district. (2). The metamorphosed gabbros and associated hybrid and contaminated rocks. The Cox's river intrusion, which occupies an area of about 900 acres, is situated on the river at a distance of about three miles below the crossing of the Jenolan Road. It has been shown that the differentiation of an earlier partial magma of gabbro gave rise to a slightly more acid core. The whole was then enveloped by a ring-like intrusion of a later more acid partial magma of quartz-mica-diorite, and as a result of this later intrusion the gabbros have suffered three types of metamorphism: (1) thermal metamorphism; (2) reaction or partial hybridisation; (3) hydrothermal metamorphism. H. J. CARTER: Australian Coleoptera. Notes and new species. (8). Thirty-six species are described as new—eight Buprestidae, nineteen Tenebrionidae, eight Cistelidae and one Cerambycidae. Tables are given for the species of *Cotulades* and *Byallius*. H. L. JENSEN:

Corynebacteria as an important group of soil micro-organisms. Bacteria possessing the characters of the genus *Corynebacterium* were found to occur as a numerically important group of micro-organisms in Australian soils, accounting for 8–65 per cent of the numbers of bacterial colonies developing on plates of dextrose-casein-agar. They appear to be active in the decomposition of organic matter in soil, particularly in the later stages of the process. They are probably identical with certain organisms previously recorded as rhizobia.

Forthcoming Events

Wednesday, Oct. 4

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, at 3.—Prof. Henry E. Armstrong: Inaugural Sessional Address.

Friday, Oct. 6

PHYSICAL SOCIETY, at 5.45—(at the Royal Institution, 21, Albemarle Street, London, W.1).—Dr. Herbert E. Ives: "Thomas Young and the Simplification of the Artist's Palette" (Thomas Young Oration).

Official Publications Received

GREAT BRITAIN AND IRELAND

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1491 (S. and C. 367, 368): Experiments on Swept-back and Swept-forward Aerofoils. By D. H. Williams and Dr. A. S. Halliday; with an Appendix by H. B. Irving. Pp. 22+19 plates. 1s. 3d. net. No. 1527 (T.3360): Binary Servo-Rudder Flutter. By Dr. W. J. Duncan and A. R. Collar. Pp. 23+2 plates. 1s. 3d. net. No. 1532 (T. 3308, 3308A): The Best Basis of Aircraft Performance Reduction. Part 1: Supercharged Engines, by J. L. Hutchinson and E. Finn; Part 2: Unsupercharged Engines, by E. Finn. Pp. 18+23 plates. 2s. 3d. net. (London: H.M. Stationery Office.)

Journal of the Marine Biological Association of the United Kingdom. New Series, Vol. 19, No. 1, August. Pp. 486. (Plymouth.) 19s. 6d.

Rothamsted Experimental Station, Harpenden: Lawes Agricultural Trust. Report for 1932. Pp. 227. (Harpenden.) 2s. 6d.

Proceedings of the Royal Society of Edinburgh, Session 1932-1933. Vol. 53, Part 3, No. 17: The Effect of Consanguineous Parentage upon Metrical Characters of the Offspring. By Prof. Lanclot Hogben. Pp. 239-251. 1s. 3d. Vol. 53, Part 3, No. 18: The Faecal Pellets of *Hippa asiatica*. By Dr. Hilary B. Moore. Pp. 252-254. 6d. Vol. 53, Part 3, No. 19: The Diffusion Coefficients of Bromine-Argon, Bromide-Methane, Bromide-Hydrogen Chloride, Bromine-Nitrous Oxide. By Dr. John E. Mackenzie and Dr. Harry W. Melville. Pp. 255-259. 6d. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.)

Proceedings of the Royal Society. Series A, Vol. 141, No. A845, September 1. Pp. 493-747+plates 10-17. 13s. Proceedings of the Royal Society. Series B, Vol. 113, No. B784, September 1. Pp. 345-495+plates 11-12. 10s. (London: Harrison and Sons, Ltd.)

Proceedings of the Royal Irish Academy. Vol. 41, Section B, Nos. 12, 13: On *Cleistopora geometrica* (Milne-Edwards and Haime), by Louis B. Smyth; On certain Carboniferous Corals with Epithecal Scales, by Louis B. Smyth. Pp. 167-178+plates 8-10. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 1s.

OTHER COUNTRIES

Indian Central Cotton Committee: Technological Laboratory. Technological Bulletin, Series B, No. 16: Fibre-Length Irregularity in Cotton. By Dr. Nazir Ahmad and Harirao Navkal. Pp. ii+10. (Bombay.) 8 annas.

Society of Biological Chemists, India. Biochemical and Allied Research in India in 1932. Pp. 86. (Bangalore.)

India: Meteorological Department: Scientific Notes. Vol. 5, No. 52: Thunderstorms in South India during the Post-Monsoon Months, October and November 1929. By S. P. Venkiteswaran. Pp. 63-68+8 plates. 1 rupee; 1s. 9d. Vol. 5, No. 53: A Note on the Rapid Fluctuations of Atmospheric Pressure and the Atmospheric Instability at Peshawar during 1928 and 1929. By S. Basu and S. K. Pramanik. Pp. 69-88+4 plates. 12 annas; 1s. 3d. (Delhi: Manager of Publications.)

Bulletin of the Madras Government Museum. New Series, Natural History Section, Vol. 3, Nos. 3 and 4: The Life-Histories of Decapod Crustacea from Madras, by M. Krishna Menon; Sagitta of the Madras Coast, by Dr. C. C. John. Pp. 55+11 plates. (Madras: Government Press.) 2.6 rupees.

The Indian Forest Records. Vol. 18, Part 7: Entomological Investigations on the Spike Disease of Sandal. 10: Melasidae and Elateridae (Col.). By E. Fleutiaux. Pp. 16. (Delhi: Manager of Publications.) 5 annas; 6d.

Conseil Permanent International pour l'Exploration de la Mer. Rapports et procès-verbaux des réunions, Vol. 85. 2^{ème} partie: Rapport administratif (1932-1933); 3^{ème} partie: Appendices. Pp. 75. (Copenhagen: Andre. Fred. Hest et fils.) 7.00 kr.