

and A. Grandsire: Green leaves and chlorotic leaves: the ternary materials.—I. A. Christiansen, G. Hevesy and Sn. Lomholt: Researches by a radio-chemical method on the circulation of lead in the organism. There is an essential difference between the results obtained with bismuth and with lead. The quantities of lead accumulated in the liver and eliminated by the fæces are greater, at the expense of the amounts found in the kidneys and urine. With bismuth the latter organs play the principal part in elimination.—A. Fernbach and I. Stoleru: The influence of the reaction of the medium on the antiseptic properties of the hop. The antiseptic power of hops depends essentially on the hydrogen ion concentration of the culture medium.—E. Kayser and H. Delaval: Contribution to the study of wine yeasts.—Henri Stassano and A. Rollet: The carbonic acid removed from milk by the usual method of pasteurisation. The advantage of treatment in a closed circuit.—A. Demolon and Mlle. V. Dupont: The resistance of soils to acidification.—R. Argaud and D. Clermont: The glandular behaviour of the chordome.—Robert Ph. Dollfus: Polyxenaria and progenesis of the metacercaria larva of *Pleurogenes medians*.

CAPE TOWN.

Royal Society of South Africa, July 16.—Dr. A. Ogg, president, in the chair.—D. J. Malan and D. E. Malan: The spermatogenesis of *Locustana pardalina* (Walker). (The Brown Trek Locust.) The chromosome numbers in more than 40 genera of locusts have been worked out, and in practically all cases it has been found that $2n = 23$ (male) and 24 (female). The few exceptions could all be accounted for by secondary linkage of non-homologous chromosomes.—H. O. Monnig: A new trichostrongylus from South African sheep. A description is given of *Trichostrongylus rugatus* n. sp. which occurs in the first 8 to 12 feet of the small intestine in South African sheep.—K. H. Barnard: The digestive canal of Isopod Crustaceans. The stomach (fore-gut) in a large number of Isopods of various families has been compared with that of *Ligia*, which may be taken as a basic type. A general agreement exists between the stomachs of omnivorous or herbivorous forms and those of parasitic forms, but with certain modifications due to the physiological differences in the mode of obtaining nourishment.—John Hewitt: Facts and theories on the distribution of scorpions in South Africa. The prevalence of primitive types in South Africa seems definitely against the probability of a South African origin for the families concerned. Assuming that the region of greatest differentiation of a group is its centre of dispersal, then we must look to Eurasia as the immediate source of scorpion fauna. But in most of the genera we find clear evidence of local evolution. These centres are different for different genera. Lines of gradational series of forms are explained as phylogenetic series ranged along former routes of migration, the simplest and oldest forms having migrated farthest from the centre of origin.—A. W. Veater: (1) Note on covariants and invariants of binary quatics. (2) Note on differential invariants of the group of homographic transformation of a plane and of certain sub-groups.

SYDNEY.

Royal Society of New South Wales, July 2.—Dr. C. Anderson, president, in the chair.—A. R. Penfold: The essential oil of *Backhousia sciadophora* (N.O. Myrtaceæ) F.v.M. The leaves and terminal branchlets yielded about 0.3 per cent. of a dark brown oil, which was found to contain about 80-85 per cent. *d-a*-pinene, the remainder being sesquiterpene, sesquiterpene alcohol, with small quantities of phenol and caprylic

acid ester. The constants obtained were as follows: Specific gravity, $15/15^{\circ}$ C., 0.8799-8802; optical rotation, $+33.7-34.2^{\circ}$; refractive index, 20° C., 1.4704 to 1.4717; solubility in 80 per cent. alcohol, insoluble in 10 volumes.—A. R. Penfold and R. Grant: The germicidal values of the pure constituents of Australian essential oils, together with those for some essential oil isolates and synthetics. The Rideal-Walker tests were carried out as described in previous communications, the following results being obtained: Linalool (13), linalyl acetate (5.25), coumarin (4), vanillin (3.5), isoemethone (14), methyl eugenol ether (13.5), darwinol (13), darwinol acetate (3), bornyl acetate (6), amyl salicylate (4), benzyl alcohol (5.25), benzyl acetate (2), benzaldehyde (9), anthranilic acid (aqueous solution, 2), ethyl alcohol, (12), methyl anthranilate (6.5), anethole (11), anisaldehyde (7), cinnamic aldehyde (17), menthol (synthetic) (20), menthol (natural) (20), valerianic acid (2), ethyl valerianate (4.5), propyl valerianate (8), butyl valerianate (10), isobutyl valerianate (8.5), amyl valerianate (5), menthyl valerianate (3), benzyl valerianate (6), phenyl ethyl valerianate (4), geranyl valerianate (2), rhodinyl valerianate (1), citronellyl valerianate (2).—A. R. Penfold and F. R. Morrison: Notes on *Eucalyptus piperita* and its essential oils, with special reference to their piperitone content, part i. The leaves and terminal branchlets yielded from 2 to 2.5 per cent. of pale yellow oil possessing the following constants: Specific gravity, $15/15^{\circ}$ C., 0.8924-0.9016; optical rotation, -52° to -64.6° ; refractive index, 20° C., 1.4805-1.4821; solubility in 70 per cent. alcohol, 1 in 5.3 to 9 volumes; piperitone contents, 42-48 per cent. These results are considerably different from anything that has previously been published respecting this species, and the authors have come to the conclusion that there are two forms of this tree. It is the first time that the composition of the oil, as obtained by Surgeon-General White in 1788 from trees of this species growing around Sydney (considered to be the type), has been revealed, the results published by Baker and Smith from material obtained outside of the Port Jackson district being from another form of the species, now termed the mountain form or variety "A." This latter has been found to yield only 0.6 to 0.8 per cent. of oil containing less than 10 per cent. piperitone.

Official Publications Received.

Supplement to the Journal of the Indian Mathematical Society, Vol. 15. Report of the Fourth Conference of the Indian Mathematical Society, held at Poona in April 1924. Pp. ii+32. (Madras: Indian Mathematical Society.)

The North of Scotland College of Agriculture. Calendar, Session 1924-1925. Pp. viii+164+xxiii. (Aberdeen.)

Diary of Societies.

THURSDAY, SEPTEMBER 4.

IRON AND STEEL INSTITUTE (at British Empire Exhibition), at 10.30 A.M.—L. Aitchison and G. R. Woodvine: Changes of Volume of Steels during Heat Treatment.—C. Benedicks and V. Christiansen: Investigations on the Herbert Pendulum Hardness Tester.—E. D. Campbell and G. W. Whitney: The Effect of Changes in Total Carbon and in the Condition of Carbides on the Specific Resistance and on some Magnetic Properties of Steel.—Prof. C. A. Edwards: Pickling: The Action of Acid Solutions on Mild Steel, and the Diffusion of Hydrogen through the Metal.—Dr. J. Newton Friend and W. E. Thomeycroft: Examination of Iron from Konarak.—M. A. Grossman and E. C. Bain: The Nature of High-Speed Steel.—A. Hultgren: Improvements in the Brinell Test on Hardened Steel, including a New Method of producing Hard Steel Balls.—Dr. W. Rosenhain: Present Position of the Theories of the Hardening of Steel.—F. C. Thompson and W. E. W. Millington: The Effect of Free Surfaces on the Plastic Deformation of Certain Metals.—Ferrous Alloys Research:—Part I, Introductory. Dr. W. Rosenhain; Part II, Iron and Oxygen, F. S. Tritton and Dr. D. Hanson; Part III, The Estimation of Oxygen in Pure Iron, T. E. Rooney. (Papers 6, 1, 4, 9 will be read and discussed.)

FRIDAY, SEPTEMBER 5.

IRON AND STEEL INSTITUTE (at British Empire Exhibition), at 10.30 A.M.—(Papers 10, 8, 7, 2 from list given above will be read and discussed.)