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Rothamsted Research

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TECHNICAL AND OTHER PAPERS

GENERAL

- LXI. R. K. SCHOFIELD. "*The Viscosity of Flour Dough.*" Proceedings of the Royal Society of London, A, 1937, Vol. CLXIII, pp. 334-337.

This is a contribution to a discussion on the viscosity of liquids held by the Royal Society. The results of the data originally published in the Journal of Physical Chemistry and abstracted as papers V, VI, and VII in the Rothamsted Report for 1932 and as paper XVIII in the 1936 Report were briefly summarised.

- LXII. G. NAGELSCHMIDT. "*A New Calcium Silicophosphate.*" Journal of the Chemical Society, 1937, pp. 865-867.

A new compound with a chemical composition approximating to $7\text{CaO} \cdot \text{P}_2\text{O}_5 \cdot 2\text{SiO}_2$ was isolated from certain medium-soluble basic slags. Its optical and X-ray powder data are almost identical with those of synthetic calcium silicophosphate of approximate composition $8\text{CaO} \cdot \text{P}_2\text{O}_5 \cdot 2.5\text{SiO}_2$ prepared by Trömel. The new silicophosphate, like the well-known silico-carnatite which is the main constituent of basic Bessemer slags, is readily soluble in citric acid.

- LXIII. K. WARINGTON. "*Boron in Agriculture.*" Nature, 1937, Vol. CXL, p. 1016.

Attention is drawn to the rapidly growing list of plants for which boron is an essential element; water culture experiments at Rothamsted suggest that carrot can also be included.

- LXIV. F. C. BAWDEN and N. W. PIRIE. "*Liquid Crystalline Preparations of Cucumber Viruses 3 and 4.*" Nature, 1937, Vol. CXXXIX, p. 546.

Nucleo proteins have been isolated from plants infected with these viruses, which are similar to those isolated from tobacco mosaic. The method of isolation is described, and the physical properties detailed. Fuller particulars are given in paper LIII, above.

- LXV. E. J. RUSSELL. "*Methods in Scientific Research.*" Indian Association for the Cultivation of Science, March, 1937.

- LXVI. E. J. RUSSELL. "*Modern Movements in Agricultural Science.*" Calcutta Review, 1937, Vol. LXII, pp. 230-238.

- LXVII. E. J. RUSSELL. "*Les Rapports des Bureaux Imperiaux de l'Empire Britannique avec les Travaux des Departements d'Agriculture d'Outre-Mer.*" Annales Agronomiques, 1938, Vol. VIII, pp. 149-157.

- LXVIII. E. J. RUSSELL. "*Farming in Soviet Russia.*" Journal of the Ministry of Agriculture, 1938, Vol. XLIV, pp. 1063-1072.

- LXIX. E. J. RUSSELL. "*The Farming Problem in Russia: How it is Being Met.*" Slavonic Review, 1938, Vol. XVI, No. 47.

- LXX. E. J. RUSSELL. "*Poland Revisited.*" Journal of the Manchester Geographical Society, 1937, Vol. XLVII, pp. 11-38.

- LXXI. B. A. KEEN. "*Blue Sun during Dust Storm.*" Quarterly Journal of the Royal Meteorological Society, 1937, Vol. LXIII, p. 338.

- LXXII. B. A. KEEN. "*Agriculture on the Screen.*" Sight and Sound, 1937, Vol. VI, pp. 40-42.

- LXXIII. R. K. SCHOFIELD. "*The Errors of Flow-meters and the Advantages of a New Type of Constriction.*" Proceedings of the Royal Society of Medicine, 1937, Vol. XXXI, pp. 443-445.

- LXXIV. W. E. BRENCHLEY. "*Openings for Women in Scientific Research.*" Women's Employment, Feb. 18th, 1938, pp. 76-78.

CROPS, SOILS AND FERTILISERS

- LXXV. F. M. L. SHEFFIELD. "*Stade Initial du Développement de la Fibre de Coton.*" *Coton et Culture Cotonniere*, 1937, Vol. XI, pp. 1-19.

A cytological examination, with illustrations, is given of the development of the fibre from primordial cells in the epidermis from the date of the opening of the flower. Emphasis is laid on the variability from cell to cell in a single seed, and from seed to seed within a single cell.

- LXXVI. F. YATES and W. G. COCHRAN. "*Sampling Observations on Wheat.*" *Journal of the Ministry of Agriculture*, 1937, Vol. XLIII, pp. 1128-1129; Vol. XLIV, pp. 314-316, 701-706.

- LXXVII. W. E. BRENCHELEY. "*Some Deficiency Diseases of Crop Plants.*" *Journal of the Ministry of Agriculture*, 1937, Vol. XLIV., pp. 116-122.

- LXXVIII. W. E. BRENCHELEY. "*Boron and the Control of Plant Disease.*" *Nature*, 1937, Vol. CXXXIX, pp. 536-537.

- LXXIX. W. E. BRENCHELEY. "*Pasture Problems.*" *Nature*, 1937, Vol. CXL., pp. 918-919.

- LXXX. HUGH NICOL. "*Synthetic Substances that Regulate Growth in Plants.*" *Manufacturing Chemist*, 1937, Vol. VIII. *Part I: "Synthesis,"* pp. 175-180. *Part II: "Some Effects and Modes of Application,"* pp. 211-216. *Part III, "Uptake from Soil: Natural Sources, Nomenclature,"* pp. 254-257.

- LXXXI. H. L. RICHARDSON. "*The Examination of Soils by Screened Ultra-Violet Light.*" *Soil Research*, 1937, Vol. V, pp. 308-310.

In all soils, except those heavily impregnated with salts, the soil-material as a whole was non-fluorescent. Small rootlets and other fragments of structural organic matter fluoresced brightly. The salts in saline soils fluoresced sufficiently to make them more readily visible by ultra-violet than by ordinary light.

- LXXXII. B. A. KEEN. "*New Views on Drainage.*" *The Farmer and Stock-Breeder*, 1938, Vol. LII, p. 740.

- LXXXIII. B. A. KEEN. "*The Circulation of Water in the Soil between the Surface and the Level of Underground Water.* Sixième Assemblée Générale à Edinbourg de l'Association Internationale d'Hydrologie Scientifique, 1936, Bull. 22, pp. 37-48.

- LXXXIV. B. A. KEEN and E. W. RUSSELL. "*Are Cultivation Standards Wastefully High?*" *Journal of the Royal Agricultural Society of England*, 1937, Vol. XCVIII, pp. 53-60.

- LXXXV. E. W. RUSSELL. "*The Physical Basis of Soil Structure.*" *Science Progress*, 1938, Vol. XXXII, pp. 660-676.

- LXXXVI. B. A. KEEN. "*Why Soil needs Lime.*" *The Farmer and Stock-Breeder*, 1938, Vol. LII, p. 471.

- LXXXVII. H. V. GARNER. "*The Effect of Manures on the Size of Main Crop Potatoes.*" *Empire Journal of Experimental Agriculture*, 1937, Vol. V, pp. 327-341.

- LXXXVIII. H. V. GARNER. "*Fertiliser Trials at Schools—Further Experience with Microplots.*" *School Science Review*, 1937, Vol. XIX, pp. 258-265.

- LXXXIX. H. V. GARNER. "*Composts.*" *Journal of the Ministry of Agriculture*, 1937, Vol. XLIV, pp. 330-334.

- XC. H. V. GARNER. "*The Distribution of Fertilisers.*" The Third Oxford Farming Conference, 1938, pp. 64-69.
- XCI. E. M. CROWTHER. "*Soils and Fertilisers.*" Reports on the Progress of Applied Chemistry, 1937, Vol. XXII, pp. 573-603.
- XCII. E. J. RUSSELL. "*Soils and Fertilisers.*" The Farmer's Guide to Agricultural Research in 1936. Royal Agricultural Society of England, 1937, pp. 197-244.

BIOLOGICAL

- XCIII. F. C. BAWDEN. "*Plant Viruses.*" Biology, 1937, Vol. III, pp. 349-355.
- XCIV. S. D. GARRETT. "*The Soil-borne Fungus Diseases of Field and Plantation Crops: A Review of Existing Control Methods.*" Empire Journal of Experimental Agriculture, 1937, Vol. V, pp. 189-196.
- XCV. G. SAMUEL. "*Whiteheads or Take-all in Wheat.*" Journal of the Ministry of Agriculture, 1937, Vol. XLIV, pp. 231-241.
- XCVI. C. B. WILLIAMS. "*The Work of the Entomological Department at Rothamsted, 1918-1936.*" Rothamsted Annual Report for 1936, pp. 99-120.
- XCVII. H. F. BARNES. "*Check List of the Cecidomyidae of Oceania.*" Occasional Papers of the Bernice Pauahi Bishop Museum, 1937, Vol. XIII, p. 62.
- XCVIII. H. F. BARNES. "*Check List of the Cecidomyidae of New Zealand.*" Transactions of the Royal Society of New Zealand, 1937, Vol. LXVII, pp. 115-121.
- XCIX. H. F. BARNES. "*Insects and Other Pests Injurious to the Production of Seed in Herbage and Forage Crops.*" Imperial Agricultural Bureaux Herbage Publications Series, 1937, Bull. 20.
- C. K. D. BAWEJA. "*The Calculation of Soil Population Figures.*" Journal of Animal Ecology, 1937, Vol. VI, pp. 366-367.
- CI. H. L. A. TARR. "*Brood Diseases of the Bee. I. Distribution of the Various Diseases of the Brood in Different Countries.*" *Tabulae Biologicae*, 1937, Vol. XIV, pp. 150-185.
- CII. H. L. A. TARR. "*Certain Factors Influencing the Germination of the Endospores of Bacillus Larvae.*" *The Bee World*, 1937, Vol. XVIII, pp. 57-58.
- CIII. H. L. A. TARR. "*Brood Diseases of Bees Investigations.*" *The Bee World*, 1937, Vol. XVIII, pp. 110-112.
- An abridged report on the brood disease investigation for the year ending September 30th, 1937.
- CIV. H. L. A. TARR. "*The Resistance of Individual Larvae to Inoculation with Large Doses of the Spores of Bacillus Larvae.*" *The Bee World*, 1937, Vol. XVIII, pp. 115-116.