

manuring, pruning and general cultivation, together with the introduction of new clonal material of proved worth, must be considered as a matter of urgency if yields are to keep pace with ever-rising costs. Unless yields can be substantially increased, there is only a very short future ahead for the East African industry. Other articles concern anti-hail rockets, the use of phosphatic fertilizers, chemical weed control with reports from various districts, Board notes, rainfall reports and production statistics.

### Tainting of Fruit and Vegetable Products by Agricultural Chemicals

MUCH has been written in recent years on the possible hazards due to the indiscriminate use of chemicals in agriculture. Comparatively little publicity has been given to the effect which such substances might have on the taste of products prepared from materials so treated. A recent publication, *The Tainting of Canned and Quick Frozen Fruit and Vegetables*, by V. D. Arthey and W. B. Adam, however, directs attention to this aspect of the subject (Technical Bulletin No. 8. Pp. 48. Chipping Campden: The Fruit and Vegetable Canning and Quick Freezing Research Association, 1963. 12s. 6d.). The results of more than 400 controlled field trials involving some seventy agricultural chemicals (insecticides, herbicides and fungicides) are tabulated and discussed, together with the findings of the expert testing panel on the corresponding canned and frozen fruits and vegetables. The following crop protection chemicals have been found to produce taints on certain named fruits and vegetables in the Campden tests: aldrin, benzene hexachloride, captan, chlorthaloxyl, dicloran, ferbam, griseofulvin, metaisosystox, nabam, sevin, thiram, zinc-activated PETD, zineb and zitam. In a few instances the off-flavour was thought to be due to a previous sulphur treatment. It is emphasized that the presence of a taint is not associated with any health hazard. The palate can be a much more sensitive instrument for detecting taints than the most refined chemical or physical methods of analysis, and some taints may be detected at concentrations of less than one part in  $10^6$ . It would seem possible, therefore, that consumer preferences may assist in controlling the extent to which chemicals are used in farms, market gardens and orchards.

### Resin-bonded Glass-fibre Tendons for Pre-stressed Concrete

GLASS in filament form is characterized by two important physical properties: very high tensile strength and low modulus of elasticity. While its strength exceeds that of high tensile steel wire, its modulus of elasticity is only one-third as great. In preliminary investigations of the use of fibre-glass for pre-stressed concrete, I. A. and A. Rubinsky (1954) found that losses of pre-stress consequent on creep, shrinkage and elastic strain in concrete are considerably reduced when glass-fibre tendons are substituted for steel. A paper by N. F. Somes under the above title extends this principle a stage further and describes development work carried out with resin-bonded glass-fibre tendons and reports on the testing of pre-stressed concrete beams embodying this material (*Magazine of Concrete Research*, 15, No. 45; 1963). The tendons used are in the form of resin-bonded rods of continuous drawn fibres evenly dispersed across the circular section; their properties depend on those of the constituents. The actual resin-bonded product used "... was based on an imported filament of very low alkaline content; its average strength was 270,000 lb/in<sup>2</sup>. The manufacturer quotes an average tensile strength of 150,000 lb/in<sup>2</sup> for the bonded product, based on tests of 150 samples, with a scatter of  $\pm 30,000$  lb/in<sup>2</sup> due to non-uniformity of the product or to the method of gripping and testing employed". A general purpose polyester resin ('Bakelite' No. 19002) is used as the bonding medium; it occupies about 40 per

cent of the cross-sectional area. Considerable difficulty was experienced in developing adhesive and compression-friction anchorages for the bonded fibre rods, and details are given in the paper of different grips used and of the type found to be most efficient for the purpose. The use of correct stress at tensioning and avoidance of surface damage at casting are very important factors. It is concluded that tendons of the type described in this research should preferably not be tensioned to an initial stress greater than 0.45 of their short-term strength. As regards the tests on pre-stressed beams, failure loads were found to show agreement with those calculated by the strain compatibility method.

### University News:

London

PROF. A. D. M. GREENFIELD, Dunville professor of physiology in the Queen's University of Belfast, has been appointed to the chair of physiology tenable at St. Mary's Hospital Medical School. Dr. R. E. ELLIS, senior lecturer in physics at Middlesex Hospital Medical School, has been appointed to the readership in physics tenable at St. Bartholomew's Hospital Medical College. Dr. Lewis Wolpert has been appointed to the readership in zoology tenable at King's College. The title of professor of theoretical magnetism has been conferred on Dr. E. P. Wohlfarth in respect of his post at the Imperial College of Science and Technology.

Manchester

THE title of professor of petrology has been conferred on Dr. W. S. MacKenzie. Dr. MacKenzie joined the University of Manchester in 1956 when he was appointed Imperial Chemical Industries Fellow. In 1958 he was appointed to a lectureship in geology, promoted senior lecturer in 1960, and reader in petrology in 1963.

Sheffield

THE following appointments to lectureships have been made: R. D. Gillard (chemistry); D. H. Wade (civil engineering); Dr. R. J. Webster (pure mathematics). Dr. D. J. Evans has been appointed director of the computing laboratory in the Department of Applied Mathematics.

### Announcements

THE Amos Memorial Lecture, entitled "Research and Education in a New University", will be delivered by Dr. G. Templeman, vice-chancellor of the University of Kent, at the East Malling Research Station on March 19.

A CONFERENCE on "North-East Development and the Plant Sciences, with Special Reference to County Durham" will be held in the University of Durham on March 14. Further information can be obtained from the Secretary, Department of Botany, University of Durham.

A MEMBERS' day, incorporating the annual general meeting, of the National Vegetable Research Station Association, will be held at the Station on March 10. The programme will include talks and demonstrations on research on seed production and seed quality. Further information can be obtained from the Secretary, National Vegetable Research Station, Wellesbourne, Warwick.

A SERIES of lectures on "Gel-Filtration and Recycling Gel-Filtration" will be delivered by Dr. H. H. Bannich of the Biochemical Institute, Uppsala, at Imperial College, London (March 12); University of Glasgow (March 13); Royal Victoria Infirmary, Newcastle upon Tyne (March 16); University of Manchester (March 17); Royal Victoria Hospital, Belfast (March 18); Queen Elizabeth Hospital, Birmingham (March 19); University of Leeds (March 20). Further information can be obtained from the Managing Director, Pharmacia (Great Britain), Ltd., Sinclair House, The Avenue, West Ealing, London, W.13.