to be of general interest. It contains a good account of the evolution of Indian Music from the Vedic times and also a bibliography of books for further study.

C. S. AYYAR.

1. Sir James Jeans, *Science and Music*, 1937, p. 166; Helmholtz, *Sensations of Tone*, Ellis' Translation, 1930, p. 17. 2. Helmholtz, *Ibid*, p. 17. 3. *Ibid.*, pp. 284, 515, 516. 4. *Ibid.*, pp. 14, 332, (Items 29 and 28) and 333, note under table of roughness.

USE OF NITRIC ACID IN THE PRODUCTION OF PHOSPHATE FERTILIZERS

IN view of the difficulties that might arise in maintaining adequate supplies of sulphuric acid to the fertilizer industry, the Chemical Research Laboratory, Teddington, has been studying for the past two years the possibility of making phosphate fertilizers by methods which might effect a saving in the amount of sulphuric acid used. The most obvious alternative to sulphuric acid is nitric acid, for its production does not call for the use of imported raw materials, while the nitrogen value of the acid is recoverable in the form of a nitrogenous fertilizer, and this offsets to some extent the greater cost of the acid as compared with sulphuric acid. Unfortunately, the action of nitric acid on phosphate rock leads to the production of fertilizer containing much calcium nitrate, which is a highly hygroscopic substance and causes the fertilizer to become damp and difficult to use. Consequently, the work at the Chemical Research Laboratory has largely been confined to the use of mixtures of nitric and sulphuric acids. Actually it has been found that products made in this way are more stable to atmospheric conditions than when nitric acid is used alone. The maximum amount of nitric acid which can be tolerated in order to give a product having a low absorption of moisture is when the mixture of acids contains about 2 mol. of nitric acid to one of sulphuric.

* Courtesy of *Nature*, May 19, 1951.

RESEARCH FELLOWSHIP AWARDS

AT a recent meeting of the Council of the National Institute of Sciences of India, the following awards of Research Fellowships, which are normally for two years, were made:—

NIS Senior Research Fellowships: Dr. A. M. Naqvi, Ph.D., "Solar Problems" at the University of Delhi; Dr. S. C. Shome, Ph.D. (Dacca & Cantab.), "Corrosion of Metals" at the National Metallurgical Laboratory, Jamshedpur; Dr. B. G. L. Swamy, D.Sc. (Mysore), "The Comparative Morphology and Relationships of Some of the Families of the Order Ranales," at the Madras University.

NIS Junior Research Fellowships: Mr. D. Basu, M.A., "The Waldian Approach to the Problems of Estimation," at the Indian Statistical Institute, Calcutta; Dr. M. Datta, D.Phil., "New Probabilistic Approach to the Basis of Statistical Physics," at the Calcutta University; Dr. A. M. Mehta, D.Phil. (Oxon.), Investigation of Biles (from Slaughter-Houses in Bombay) with a View to Search for 11 and 12 Oxygenated Steroids Needed for Synthesis of Anti-Arthritic Compounds Related to Cortisone," at the Haffkine Institute, Bombay; Dr. A. K. Mukherjea, M.B., D.T.M., "Cultivation of *E. histolytica* in a Bacteria free Medium," at the Indian Institute for Medical Research, Calcutta; Dr. (Mrs.) T. S. Sarojini, Ph.D. (Madras), "Studies in Soil Fungi with Special Reference to Fusariose Disease of Cajanus," at the Madras University; Mr. E. G. Silas, B.Sc. (Hon. Madras), "the Zoogeography of the Western Ghats as Evidenced by Distribution of Fishes," at the Madras University; Mr. T. B. Sinha, M.Sc. (Alld.), "the Morphology and taxonomy of Mites," at the Allahabad University.

ICI (India) Research Fellowships: Dr. B. K. Banerjee, D.Phil. (Cal.), "Physico-chemical Studies of Glass," at the Indian Association for the Cultivation of Science, Calcutta; Dr. A. Ganguli, Ph.D. (Edin.), "Investigation on Potato Virus Diseases," at the Bose Institute, Calcutta; Dr. P. T. Rao, D.Sc. (Waltair), "Complex Molecular Spectra of the Transition Groups of Elements (in the Near-Infrared and the Visible)," at the Andhra University, Waltair.