

Recurrent expenditure will be met by an average grant of £150,000 a year for the next five years, from the Government of the Federation of Rhodesia and Nyasaland. There is also a grant for education from the Carnegie Corporation of £30,000 spread over five years, while an Oppenheimer Grant of £2,000 a year for seven years provides for a lecturer in Portuguese. Estimates suggest that another £1,250,000 is required to place the University College in a position to meet the demands which will arise during its first decade of existence. It is to be hoped that the financial problems of this most important experiment in African multi-racial education will not seriously impede its development.

The Imperial College of Science and Technology

THE forty-ninth annual report of the Governing Body of the Imperial College of Science and Technology, covering the year ended July 31, 1956 (pp. 101. London: The Imperial College, 1956), refers at some length to the revision of the plan for the expansion of the College. The contract for site clearance and for the foundations of the first part of the mechanical engineering building was placed in May 1956, and the Governing Body hopes that the major obstacles to planning have now been removed and that erection of the buildings for the expanded College will proceed steadily. The inaugural address on the future of the College, delivered by the rector, Dr. R. P. Linstead, in October 1955 is printed in an appendix.

The acquisition of the Princes Gardens site for halls of residence offers a reasonable prospect that both the long-term aim of providing one year of residence for every student and the short-term aim of providing about 500 study-bedrooms may be realized before the end of the coming quinquennium. There has been a satisfactory number of applications for the preliminary one-year course for students who had not specialized in science at school. Full-time men students totalled 2,006 and women students 67, compared with 1,810 and 60, respectively, in 1954-55. Of the total, 538 were undergraduate and 253 postgraduate students of science, and 852 undergraduate and 430 postgraduate students of technology. There were 60 research assistants in science and 55 in technology, and 486 students were pursuing research for higher degrees or diplomas.

Linear Programming at the University of Birmingham

LINEAR programming, a method of planning inter-related activities, has developed at an ever-increasing rate since its start about eight years ago. Mathematically, it is a routine for maximizing a given linear combination of variables which are subject to linear inequalities. Since its first application, by George B. Dantzig in 1949, to problems of inter-industry relations, transportation, minimum adequate diets, warehousing, and a hypothetical airlift problem, many economic problems have been found amenable to this technique, and the mathematical interest of the subject has both deepened and widened. One of its most interesting formal applications has been that to J. von Neumann's theory of games. Many geometrical and combinatorial problems are also related to linear programming theory, while in the field of economic applications quadratic and dynamic programming have been added to the earlier discipline. The maturity of the subject has been acknowledged

by the Institute of Production Engineering of the University of Birmingham, where a senior executive residential course was organized by the staff tutor in operational research, Mr. R. S. Gander. S. Vajda gave a course of six lectures on theory, and some practical aspects and special cases were dealt with in lectures by M. A. Aczel, K. B. Haley, A. Hoffman, G. Morton, E. Kay and D. G. Prinz. Animated discussions took place after every meeting and practical work periods in the afternoons gave opportunities for testing the understanding of the principles. The course was generally judged a success and it is intended to repeat it in the coming summer.

The Bose Institute, Calcutta

THE thirty-ninth anniversary of the foundation of the Bose Institute was celebrated on November 30, 1956, in the hall of the Bose Institute, when Dr. A. C. Ukil, president of the National Institute of Sciences of India, delivered the eighteenth Acharya Jagadish Chandra Memorial Lecture. Dr. Ukil chose as the subject of his lecture "Frontiers of Biology". The director presented a short report of the activities of the Bose Institute during the past year. The main activities of the Institute, he mentioned, centre around the different aspects of plant life, studied from the biochemical, the physiological, the cytological and the genetical points of view. The objects of such studies range from the simplest of autotrophic cells, the green and blue-green algae, through the fungi, up to the higher plants. Different methods of investigations are employed for the purpose. During the second five-year plan period, the Institute expects to receive Rs. 25 lakhs as recurring grant and Rs. 12.5 lakhs as non-recurring grant. In addition, the Institute will receive this year more than Rs. 2 lakhs as grants-in-aid, including a grant of Rs. 30,000 from the All India Committee for Jute and Oilseeds Research, for the installation of a 20-curie cobalt-60 source of gamma radiation for field irradiation of economic plants.

The use of radioactive isotopes of some common elements as tracers for the study of photosynthesis and plant metabolism is being successfully developed. A Tiselius electrophoresis apparatus recently constructed in the workshop has been put into operation. A number of problems of human pathology are being investigated in co-operation with workers from medical research institutes. A successful method of growing plant gall tumour in synthetic media has been worked out. Investigations of their cellular structure and metabolism promise to be of great importance. Physiological and cytological investigations on the mechanism of mechanical response in plants, in continuation of J. C. Bose's pioneering work, are being successfully continued.

At Mayapuri, Darjeeling, cosmic ray studies in co-operation with the International Geophysical Year (1957-58) have started. The apparatus constructed for the purpose are continuous recording cubical meson telescope and neutron monitors. A large continuously recording pressure ionization chamber will be used in Calcutta.

The Society for Visiting Scientists

THE report presented by the Council to the ninth general meeting of the Society for Visiting Scientists on December 14, 1956, expresses grave concern with the financial position of the Society. Successful dis-