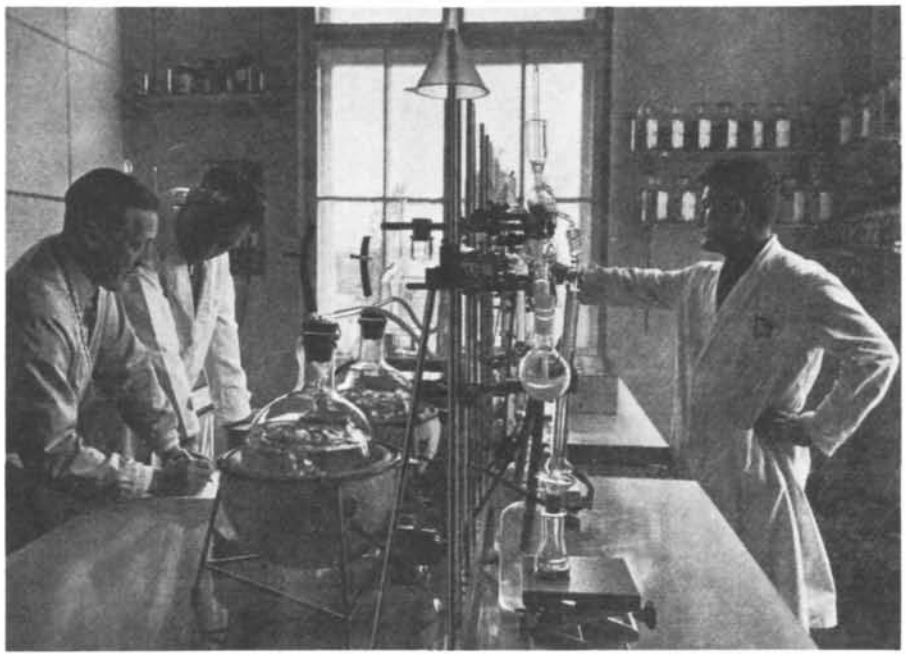
NUCLEAR TECHNIQUES INCREASE AGRICULTURAL PRODUCTION

At Zemun, near Belgrade, the Yugoslav Institute for the Application of Nuclear Energy in Agriculture, Veterinary Medicine and Forestry (INEP) has assembled extensive laboratories, equipment and staff for the main purpose of increasing agricultural production. It is now regarded as the focal point within the country for this class of work, in which many modern techniques can be applied and training given.

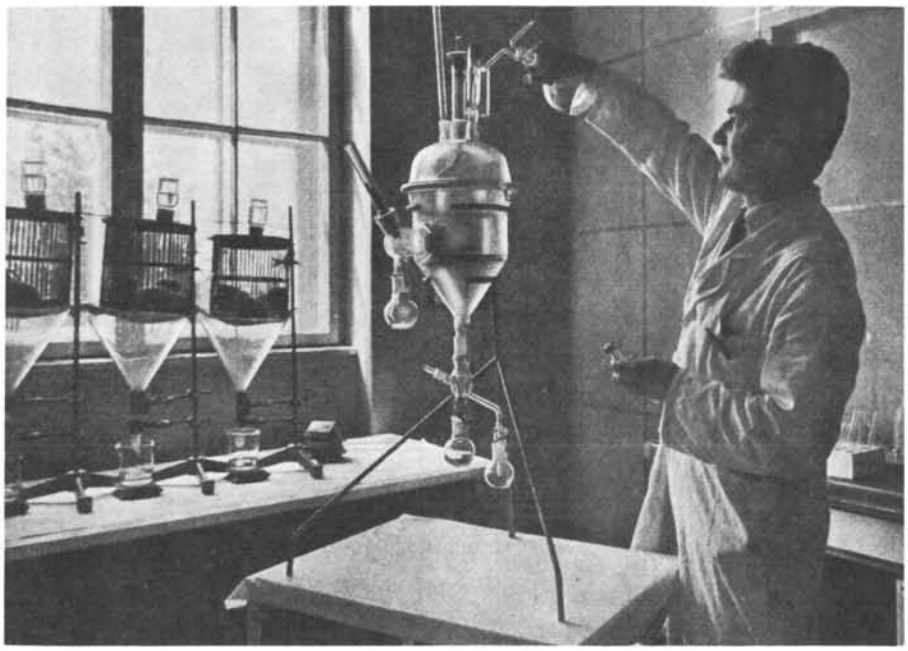
During the last three years the Institute has devoted considerable effort to one of the biggest single projects for applied research and training with which the United Nations Special Fund has yet been associated. With IAEA acting as its executing agency, and in cooperation with the Yugoslav Federal Nuclear Energy Commission, the Special Fund has been supporting a programme under the general title of "Nuclear Research and Training in Agriculture". It has entailed exhaustive studies of soil fertility and plant nutrition; use of ionizing radiations for production of mutants to be used in plant breeding; and animal nutrition and health protection. The main objective is to increase the output and quality of plant production and to ensure more effective use of plant products in animal husbandry.

Mass spectrometer set up for assay of heavy nitrogen (N 15) during soil fertility studies.



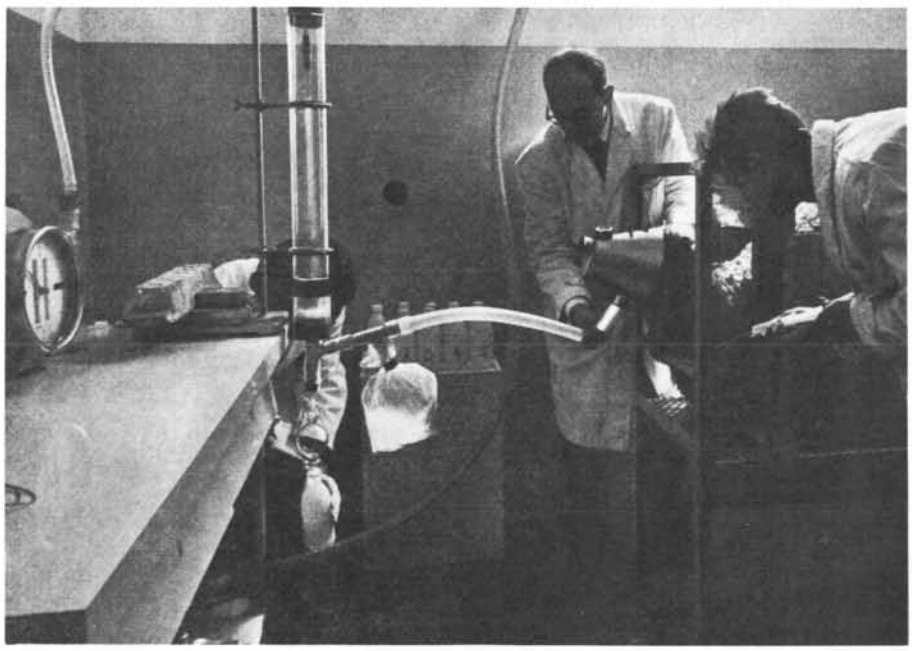
Work with advanced instruments must depend upon classical laboratory work, as illustrated by this scene in the Plant Nutrition Laboratory.

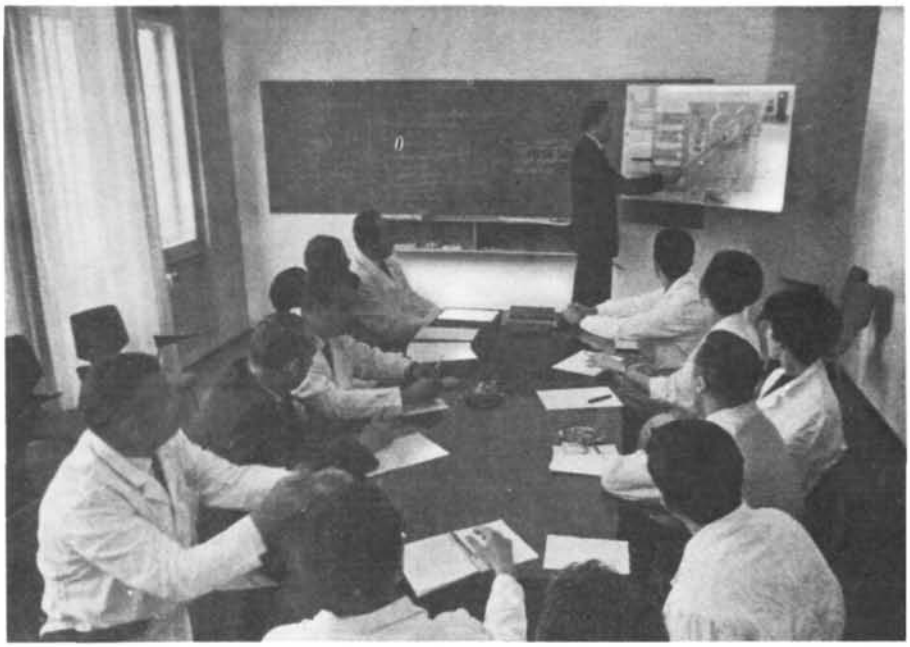
Forestry research includes investigation of the uptake of phosphorus from the soil at various stages of growth. In this enclosure radioactive phosphorus (P 32) is used as a tracer.



For animal nutrition studies the metabolism of different foodstuffs is assessed with the aid of special metabolism chambers. (Photo: UN)

Metabolism of glucose in larger animals is studied using respiratory apparatus. A sheep is the subject of the experiment illustrated. (Photo: UN)





Particular stress is laid on training. This picture was taken during a seminar on X-ray techniques applied to clay mineralogy. (Photo: UN)

Practical application of the results obtained has been ensured by the close collaboration existing between this and other agricultural research Institutes, extension services, the agricultural "Kombinates" and industries supplying fertilisers, food concentrates and similar materials.

Special Fund assistance amounting so far to more than $600000 has been used to provide equipment and expert services and to train Yugoslav scientific workers abroad. The Yugoslav Government provided both new and existing buildings, local equipment, training for staff in Yugoslavia and also met Institute expenses, their total contribution having reached nearly $2000000 early this year.

Some aspects of the complex research involved, from which much valuable information has been obtained, is shown in the photographs.