Study single crystal structures including crystal perfection and the effects of surface treatment (e.g. polishing methods) on crystal perfection.

Study changes in crystal structure during phase changes.

The advantages of the method are:

The instrument is simple to operate and requires no specially trained staff.

Results are obtained rapidly (a pattern can be obtained in about 5 minutes from first placing specimen inside vacuum chamber).

Interpretation of patterns is very simple.

Vacuum requirements are not rigid—results can be obtained at pressures as high as 10^{-4} torr or greater.

It is not necessary to remove a thin film specimen from its substrate.

The instrument works by scattering a beam of protons from a specimen of material to produce a magnified image on a fluorescent glass screen. When the protons strike the specimen, those travelling close to the densely packed rows or planes of atoms have their trajectories blocked so that a reduction of intensity occurs in the directions of the rows or planes. The image on the fluorescent glass screen corresponds to the crystal lattice structure and its orientation.

The technique is complementary to electron and X-ray diffraction for the study of crystal structures.

The proton scattering microscope was developed at Harwell and is being further developed and manufactured under licence by Edwards High Vacuum International Ltd., Manor Royal, Crawley, Sussex.

29th October, 1968

Atomfair 1968

The United Kingdom Atomic Energy Authority had an exhibition of 1,900 sq. ft. at ATOMFAIR 1968. This Fair was associated with a concurrent international conference on the constructive uses of atomic energy, which was co-sponsored by the American Nuclear Society and the American Atomic Industrial Forum and at which several senior scientists from the U.K.A.E.A. gave papers. The exhibition was held at the Sheraton Park Hotel in Washington, D.C., from 10th-14th November inclusive, and the A.E.A.'s stand was adjacent to the British Nuclear Forum's display.

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Radioisotopes in food processing—Part 1 Radioisotope instruments
By R. M. Longstaff.

February

The design of the Steam Generating Heavy Water Reactor
H. Cartwright to the I.A.E.A. Symposium on Heavy Water Power Reactors in Vienna.

Radioisotopes in food processing—Part 2 Analytical and tracer techniques
By R. M. Longstaff.

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Article by Lord Penney, originally published by the Indian Council of Scientific and Industrial Research.

Isotopic thermoelectric generators
Colloquium at the Washington Hotel, London.

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Dr. Hans Kronberger, F.R.S., Scientist-in-Chief, U.K.A.E.A., to the Institute of Atomic Studies, Bucharest.

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