150 cycles of temperature from ambient to 70° C. have also indicated that the change in time of fall of collector current due to irradiation should be permanent.

A sample of mono-crystalline germanium has also been irradiated with a dose of 10^{14} neutrons/sq. cm. A rise in resistivity from 2·03 ohm cm. to 2·24 ohm cm. and a decrease in hole life-time, measured by a modified light-spot system[3], from 1·6 μsec. to 0·6 μsec. were observed, with little change in hole mobility. In addition, two samples of 6 ohm cm. material have been measured by the Post Office Research Station, Dollis Hill. Decreases in hole life-time from 50 μsec. to 6 μsec. and from 6 μsec. to 1 μsec. have been reported.

The most abundant expected transmutations[4] are as follows:

			No of atoms produced
$^{70}Ge\ (n,\gamma)\ ^{71}Ge$	$\xrightarrow{11\cdot4\text{ days }\beta^+}$	^{71}Ga	$3\cdot1 \times 10^{12}$/c.c.
$^{74}Ge\ (n,\gamma)\ ^{75}Ge$	$\xrightarrow{82\text{ min. }\beta^-}$	^{75}As	1×10^{12}/c.c.
$^{76}Ge\ (n,\gamma)\ ^{77}Ge$	$\xrightarrow{12\text{ hr. }\beta^-}\ ^{77}As\ \xrightarrow{40\text{ hr. }\beta^-}$	^{77}Se	1×10^{11}/c.c.

These yields of impurities are low compared with those normally present, and no changes with time since irradiation consistent with these half-times have been observed.

We therefore believe that the decreased time of fall of collector current is caused by the production of recombination centres, such as lattice defects, in the bulk material.

These and similar experiments are being continued. We should like to thank the Chief Superintendent, Services Electronics Research Laboratory, for measurement facilities on germanium placed at our disposal.

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A Solid State Transformation in Tetra-acetyl-D-ribofuranose

It has been reported[1] that two modifications of 1,2,3,5-tetra-acetyl-D-ribofuranose can be prepared, one (*A*) melting at 56–58° C.; the other (*B*) melting at 85° C. It was also reported that a transformation in the solid state took place from *A* to *B* which was catalysed by the presence of *B*, and that no laboratory which was once contaminated by *B* had been able to repeat the preparation of *A*.

In a discussion with Dr. George B. Brown, of the Sloan–Kettering Institute for Cancer Research, New York, N.Y., it was suggested that X-ray data be taken for these two materials, even though a detailed structural analysis might not prove immediately to be feasible.

Several months later, a single crystal suitable for X-ray work was obtained from a sample of the *A*-material prepared and sent to us by Dr. Irving Goodman, of the Wellcome Research Laboratories, Tuckahoe, N.Y. The X-ray study was carried out by Weissenberg and Buerger precession techniques. There are two molecules in a monoclinic cell of the space group $P2_1$ the dimensions of which are:

$a = 12\cdot49$ A., $b = 5\cdot58$ A., $c = 11\cdot12$ A., $\beta = 97° 45'$.

Weissenberg multiple-film photographs for the layers *h*0*l*, *h*1*l*, *h*2*l* were taken with copper radiation. Precession photographs using copper and molybdenum were taken of the *hk*0, *hk*1, 0*kl* and 1*kl* layers.

The single crystal of the *A*-material mounted for X-ray examination remained stable for seven weeks. At the end of this period crystals of the *B*-modification were obtained from Dr. Brown and were also mounted for X-ray examination. The *A*-crystal remained stable in the same room with the *B*-crystals for about three days. Some of the *B*-material was powdered and sprinkled over the *A*-crystal at the start of a Laue photograph exposure. The resulting film indicated that the *A*-crystal had transformed completely to the *B*-material in 5–15 min. The transformed material, a fine powder of the *B*-substance, formed an opaque block in the external shape of the original *A*-crystal. It had been hoped that the transformed powder would show some preferred orientation with respect to the original *A*-structure, but this was not apparent.

Weissenberg and precession photographs of the stable *B*-material identified the space group as $P2_12_12_1$ with four molecules in a cell of dimensions:

$a = 7\cdot50$ A., $b = 13\cdot66$ A., $c = 15\cdot33$ A.

No systematic collection of intensity data for the *B*-material has been undertaken.

It is interesting to note that the molecular volume increased by about two per cent during the transformation (*A*: 383·9 A.^{3}; *B*: 392·5 A.^{3}).

At the present time, we do not contemplate detailed analysis of the data we have obtained. We shall be glad to furnish further information on our results to those who are interested.

It is a pleasure to thank Dr. Brown for his suggestion and discussion of this investigation and for the material which he supplied us. We are also very grateful to Dr. Goodman for the sample of the rare *A*-material.

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Static Electrification of Petrols

It is well known that petrols flowing down a tube acquire a quite considerable electrostatic charge, and it is perhaps less well known that the addition of a reasonable quantity of alcohol reduces this charge to insignificant proportions[1]. Some recent experiments on the effect of small quantities of alcohol reveal, however, very puzzling results. The pure petrol always acquires a positive charge and the addition of slightly more than 1 per cent of alcohol reduces the charge to zero; but what is remarkable is that the addition of a little more alcohol produces a