The complications just described, in our view, detract greatly from the practical utility of these systems as dosimeters, though they do respond to a measurable extent to doses of gamma-radiation as low as 100 rads.

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Effects of Irradiation upon Diodes of the Silicon Junction Type

A recent report by E. H. Cooke-Yarborough *et al.*[1], of the Atomic Energy Research Establishment, Harwell, indicated that the minority carrier storage effects in transistors of the point-contact type were reduced by neutron bombardments. This led me to investigate the effects of irradiation upon diodes of the silicon junction type, with the object of reduction of minority carrier storage in these. The diodes used in the experiment were the small power type of 50 mW. dissipation which are at present commercially available.

With the kind co-operation of the authorities of the Atomic Energy Research Establishment, a number of these diodes were irradiated over a range from $0{\cdot}75 \times 10^{14}$ neutrons/sq. cm. to 8×10^{14} neutrons/sq. cm. It was estimated that slow and fast neutrons were present in approximately equal quantities.

After irradiation, the diodes did not exhibit any significant change in the reverse characteristic. A progressive change in the forward conducting characteristic was noted, however, accompanied by a distinct reduction of minority carrier storage. The change noted in the forward conducting characteristic was that increased irradiation caused the abrupt change in forward resistance occurring in these diodes at approximately 0·6 V. to become less abrupt, and the slope resistance to increase. This effect was most marked in cases where irradiation dosage was in excess of 1×10^{14} neutrons/sq. cm.

Minority carrier storage, as previously stated, progressively decreased with increased irradiation. Measurement of the carrier storage effect was achieved by passing a forward current of 7 m.amp. for a period of 4 μsec., and then switching a reverse voltage of 15 V. across the diode. The integrated area of the overshoot, having an exponential decay, is a measure of the carrier storage.

The test was purely for comparative purposes and an accurate measurement of absolute values of stored charge was not attempted; as an approximation, the stored charge for the non-irradiated diodes used was between 1×10^{-9} and 3×10^{-9} coulomb. Irradiation of 1×10^{14} neutrons/sq. cm. reduced this value to less than one-third. Irradiation by 2×10^{14} neutrons/sq. cm. caused a further significant reduction, the carrier storage now being less than could be measured with the apparatus used. An estimate, however, places the carrier storage at least an order of magnitude less than that of a non-irradiated diode.

Further work is in progress to establish optimum dosage, which would appear to be between 1×10^{14} and 2×10^{14} neutrons/sq. cm.

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Reversibility of Fluorescence by Annealing

Continuing the investigations on which I reported in *Nature* of February 9, p. 319, I have found that the effect I called fluorescence, reversible by annealing, really embraces two different processes.

In the chemicals mentioned, as well as in some zeolites and in anhydrite from Bleiberg, tested in powdered form, the explanation given in the previous communication is valid: the fluorescence, destroyed by strong heating, is regenerated on renewed lesser heating when water vapour has been adsorbed on the substance. Recently, this effect has been found to be especially marked also in colemanite from Turkey.

In the feldspars, however, and in wollastonite, the effect only occurs if the samples have been touched by hand after the preliminary strong heating. Here the effect is due to particles of skin transferred to the mineral surface. That appreciable quantities of skin substance are transferred to minerals by rubbing has been proved convincingly by Halla and van Tassel[1] in a note on the smell of sparks struck from rocks. I have now found that pieces of skin taken from the human body show actually a stronger fluorescence after suitable heat treatment.

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Use of Glossy Paper for determining Droplet Sizes

In what is often called the 'impressions' technique, droplet sizes are determined by measurements of the traces made by them when they strike a target. Various types of collecting surface are used: glass plates coated with a newly prepared layer of magnesium oxide[1], glass plates coated with a silicone[2], absorbent filter paper[3], or a glossy type of paper[4]. Up to the present, glossy paper has been used only in the United States. Believing that an extra tool