be a necessary prelude to fertilization and cleavage. It may also explain the observations of Chang[6] and Austin[7], which have been interpreted as a capacitation of the sperm.

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Stimulation of Hair Growth in Rabbits by Ionizing Radiations

In the course of experiments on tracing the location of radioactive phosphorus injected intradermally[1], observations were made concerning the growth of hair. A series of rabbits was given a dose of 1,000 r. or 1,500 r. (100 kV., 7 m.amp., 2 mm. aluminium filter; half-value layer, 0·11 mm. copper; focus–skin distance, 15·5 cm.) through a 'new moon and sixpence' pattern in a lead shield backed with 'Perspex' (a circular area of 3 cm. diameter separated by a strip of skin 1 cm. in width, from a crescent-shaped exposed area of skin also 1 cm. in width surrounding half its circumference), and a solution containing 0·4 mc. of radioactive phosphorus was injected within the circle immediately after exposure.

It was occasionally noted that hair grew only on the irradiated skin areas, while the rest of the previously depilated rabbit's flank remained hairless (Fig. 1). This striking phenomenon was studied in a further series of experiments, and again the growth of hair over the irradiated areas occurred on occasion. This irregularity of response can be explained by varying physiological conditions prevailing in the skin at the time of the experiment, as these may influence the nature and degree of response[2]. These observations, in a certain respect, can be considered as analogous to those made in the course of experiments on indirect radiation effects with grafting of irradiated rabbit skin[3], in which it was noted that irrespective of the particular phase of the hair-growth cycle of the rabbits, fur grew abundantly in the immediate vicinity of irradiated tissues, whether around the grafted area or on the unirradiated skin areas transposed upon irradiated graft beds.

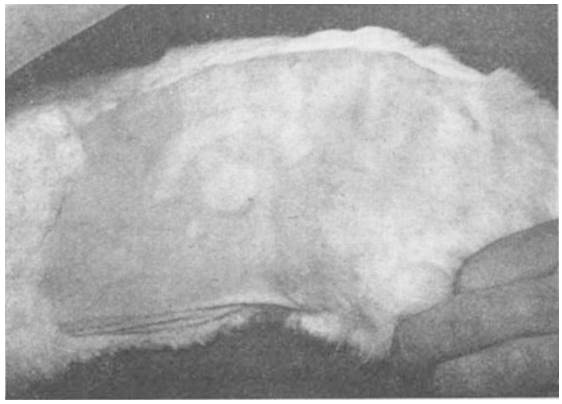

Fig. 1. Fur growing only on areas exposed to X-rays

This growth of hair in the neighbourhood of irradiated grafts, and in skin areas exposed to an amount of radiation which is greater than that of a depilation dose, is probably an indirect effect of radiation. It may be explained by a diffusion of stimulating irradiation demolition products or by an elimination of factors inhibiting growth of hair. Both explanations are compatible with the idea of an interference in the equilibrium of dynamic factors in the skin as suggested by Chase[4].

This problem is being further explored, and the effects of injection of the inactive carrier (sodium phosphate) of the radioactive phosphorus are being studied.

No inference can be made concerning the growth of hair in man under similar exposure conditions, because the mode of hair growth differs fundamentally from that of the rabbit.

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Osmiophile Granules in the Glomus Cells of the Rabbit Carotid Body

The concept of an endocrine role for the carotid body was implied by Kohn[1], when he classed the tissue as a paraganglion, but more directly supported by Mulon[2], who claimed that extracts of horse carotid body contained a vasopressor substance. According to Smith[3], there is considerable variation with species in the amount of chromaffin tissue in the carotid body, while De Castro[4] claimed that a true chromaffin reaction could not be elicited and he and others[5] do not believe that the carotid body is a paraganglion. The chemoreceptive role for the carotid body, originally postulated by De Castro[4,6], was confirmed and elaborated by Heymans and Bouckaert[7], and has since been further elucidated by many others[8]. De Castro believes the glomus cell, with its poles 'sanguin' and 'nerveux', is the chemoreceptive agent of the carotid body.

A current experimental and electron microscopic study has shown that the glomus cells of the rabbit carotid body exhibit considerable variation in overall electron density. The darker cells contain a background cytoplasm of noticeable electron density in which lie compact mitochondria with a content of internal cristæ and filaments (Fig. 1). In the lighter cells, however, this cytoplasmic matrix is less dense and the mitochondria are grossly vacuolated and distended (Fig. 2).

Of particular interest has been the constant finding in these glomus cells of a small 0·05–0·15μ osmiophile granular element often seen to be contained by a delicate membrane (Fig. 3). Variations in electron density within individual granules and from granule to granule are common. The population of granules is higher in the dark than in the light glomus cell. Granules comparable in electron microscopic appear-