It is obvious that thyroidectomy has not shown any influence upon the resistance of guinea pigs to X-rays. The survival curve in thyroidectomized guinea pigs is almost the same as in normal animals. This was also confirmed in thyroidectomized animals injected with thyroxin in physiological amounts.

This result seems to be in contradiction to the previous observations, from which it was concluded that lesions of the thymus induced by X-rays may be to a certain extent the expression of thyroid stimulation occurring in these conditions. In spite of this, thyroid stimulation is observed after non-lethal irradiation only¹. It seems, therefore, that there is an upper limit to thyroid stimulation. Certainly, the part played by the thyroid in disorders induced by X-rays can be considered as slight.

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¹ See bibliography on morphology of the thyroid in X-ray-treated animals in Comsa, J., *Ann. Endocrin.*, 13, 931 (1953).

² Betz, H. G., *C.R. Soc. Biol., Paris*, 146, 315 (1952).

³ Comsa, J., *Ann. Endocrin.*, 12, 230 (1952).

Histochemographical Effect in Rat Kidneys

IN 1949, Boyd and Board¹ showed that tissue specimens placed in contact with the emulsion of a photographic plate stored in the dark affected the emulsion in such a way that images of the specimens were 'obtained' following development and fixing. These images, due to chemical action of the specimen on the emulsion, were termed histochemographs.

Histochemographs of various tissues from normal and tumour-bearing albino rats (14 day-old transplants of dibenzanthracene sarcoma (Rd/3), Walker carcinoma and a 20-methylcholanthrene-induced tumour) have now been compared. The transplant animals were obtained from the University of Sheffield Field Laboratories and, in the first experiments, normal rats from the University of Sheffield Animal House were used. Blood, spleen, pancreas and liver preparations from these groups did not differ markedly; but a striking difference appeared in kidney histochemographs prepared as follows.

Rats under ether anaesthesia were sacrificed by exsanguination (aorta severed). Without delay, the kidneys were removed, sliced longitudinally and the halves blotted with Whatman No. 50 filter paper. The halves were placed (cut-side downwards) on the emulsion side of Ilford photographic paper (Contact; C3.1P; single weight; hard glossy) and the preparation mounted on a 'Pliofilm'-covered cork mat under 'Wratten Red Safelight' in a dark room. The preparation (generally kidneys from three normal and three tumour animals were compared simultaneously) was stored in a light-tight box at -15° C. for 50 hr. Then the film was washed for 3 min. in running water to remove tissues, developed five minutes in Kodak document developer at 20° C., washed and fixed.

As illustrated by the accompanying photograph, prepared from an original histochemograph by printing on Kodak Autopositive Document Paper, kidney preparations from thirteen tumour animals each showed a marked brown crescent (A) in the cortex-

medulla zone. This effect was absent in the kidneys of all but two of fifteen normal rats which gave more or less uniform pale grey histochemographs (B). However, when the kidneys of normal rats from the University Field Laboratory stock were examined, a high proportion of these were found to give the brown crescent reaction (see table). Thus the brown crescent reaction could not be attributed to the presence of a tumour as was at first supposed.

Animals	Brown crescent reaction	
	+	-
17 tumour rats (Univ. Field Lab.)	13	4
17 normal rats (Univ. Field Lab.)	14	3
15 normal rats (Univ. Animal House)	2	13

Rats from the University Field Laboratory are of the Wistar strain bred there. They are maintained on bread and milk (no water) with supplements of horse meat and cod liver oil separately every second and third day. On the other hand, rats from the University Animal House were obtained or bred from Wistar strains received from dealers. These animals were maintained on commercial rat cubes (Edinburgh Rat Cube No. 86). It has not been possible to examine completely the effect of diets on the kidney reaction; but some tumour animals maintained for several days on Diet No. 86 and water still gave the brown crescent reaction. The histochemographical effect was found in both male and female tumour and normal rats.

Perhaps we are dealing with a strain difference or with the effect of a disease prevalent in the Field Laboratory animals. Sections from kidneys which gave a positive reaction were not histologically abnormal, and no amyloid could be detected in them. The substance responsible for the brown crescent reaction appears to be susceptible to decomposition or to be readily diffusible, since kidneys which have given a positive reaction are no longer capable of producing the effect after 50 hr. exposure.

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¹ Boyd, G. A., and Board, F. A., *Science*, 110, 586 (1949).