inoculation, but these regressed in course of time; 6 and 7 months thereafter sarcomata developed in these two rats. In one of them sarcoma appeared on the dorsal side of the neck, precisely at the site of primary infection with the Rous virus. The tumour attained the size of an apricot; histologically it was a sarcoma with a significant polymorphism resembling the Rous sarcoma. In the tissue spindle-like cells predominated, along with rounded cells and much mucopolysaccharide. In the second rat a 2-cm. sarcoma with spindle-like cells developed on the cheek.

The sarcoma was minced with scissors and subcultured in rats of various ages. It grew well in new-born rats, and within 20–25 days reached a large size, causing death in some animals. In young rats (50–60 gm.) growth of the tumour proceeded more slowly; it attained a large size in some of them. The weight of the tumour in such cases reached the weight of the rat itself, although in some individuals growth was poor, being followed by regression. In adult rats weighing 120–150 gm. the tumour reached the size of a bean and was then resorbed. In new-born and young rats the tumour grew on the second and third passages as well. Here the tumours were characterized histologically by appreciable homogeneity, being composed exclusively of spindle-shaped cells containing less mucopolysaccharide and being more solid than the initial tumour. The inoculation of minced rat sarcomata to chickens was unsuccessful. It is possible that the Rous virus is present in the rat tumours in the masked form.

It might seem that the inhibition of the pathogenic effect of the Rous virus by antiserum led to the development of sarcomata instead of the typical cystic-haemorrhagic disease in rats infected during the embryonic period. Yet in one of the rats inoculated with the Rous virus during the prenatal period, without additional treatment with antiserum, a slowly growing cyst developed, which, seven months afterwards, was replaced by a huge sarcoma.

These experiments were carried out on rats of a stock free from spontaneous malignant tumours.

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Hydrogen Peroxide Ingestion and the Growth of Rats

SEVERAL recent communications have dealt with the capacity of ingested hydrogen peroxide to affect the regression of implanted tumours in rats. Holman¹ has claimed that a 0.45 per cent solution of hydrogen peroxide given to rats in lieu of tap-water caused regression of certain tumours; the opposite conclusion has been stated by Green and Westrop² and by Ghadially and Wiseman³. Accordingly, it seemed important to determine the effect of hydrogen peroxide on normal rats.

In one experiment, two groups of weanling male rats of the Osborne-Mendel strain developed at this Station were given a commercial dog food meal, and either tap-water or 0.45 per cent hydrogen peroxide *ad libitum* for a three-week period. During the test period, the animals on tap-water consumed an average of 544 ml. each, whereas those on peroxide averaged only 282 ml. each. The decreased amount of liquid intake was reflected in the total body-weight; 156 gm. for those on tap-water against 108 gm. for those on peroxide. No differences in the fresh weight of the testes, kidneys or spleen of the two groups were found.

In order to equalize any effects of limited intake of liquid, another group of male weanling rats was offered 0.45 per cent hydrogen peroxide in lieu of tap-water for a three-week period. Daily consumption was recorded, and a comparable group of male weanlings was given an amount of tap-water equal to the liquid consumed by the animals on peroxide. This regimen was also continued for a three-week period. It was observed that the group of rats on tap-water were continually seeking water, whereas those on peroxide did not act in a similar manner. The average body-weight was 116 gm. for those on peroxide and 104 gm. for those on tap-water. An attempt was made to see if ingestion of peroxide affected the fresh weight of some of the internal organs. Calculated in terms of percentage of body-weight, no important differences were found in the testes, kidneys, spleen or heart. The dry weights of these same tissues, calculated as percentage of body-weight, also failed to show differences.

Three weanling females were placed on a 0.45 per cent hydrogen peroxide regimen and maintained on it for five months. They were then given tap-water instead and were mated with normal males. Normal litters were produced. Six male litter mates were divided into two equal groups: one received peroxide while the other received tap-water. The animals were maintained on their respective regimens for nine months. The only noticeable effect was a difference in body-weight; an average of 521 gm. for those on tap-water against 411 gm. for those on peroxide. Three older males with an average weight of 600 gm. were given 0.45 per cent hydrogen peroxide for six weeks. At that time their average weight had fallen to 511 gm. They were then given tap-water and within two weeks had regained the lost weight.

Weanling rats offered the hydrogen peroxide *ad libitum* failed to gain weight normally. Although it had previously been shown that larger rats fed peroxide failed to gain weight normally³, this phenomenon has not previously been noted for weanlings. Ghadially and Wiseman³ attributed the loss of weight to diminished food intake; but, as noted above, this result may also be caused by a diminished liquid intake. Furthermore, long-term feeding of peroxide did not appear to affect reproduction in female rats.

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