

tion for the antiscorbutic, vitamin and account, in some degree, for the varying content of this factor in heated milk. It is also possible that the copper ingested with the food, especially in infants whose diet consists mainly of milk, may exert an effect within the animal body.

58 (1805)

The prevention of rickets in the rat by means of radiation with the mercury vapor quartz lamp.

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All the evidence as to the preventive and curative effects in the rickets of human beings of the radiations from the mercury vapor quartz lamp has been furnished by the X-ray. In order to determine the protective action of these radiations in experimental rickets in rats and also to examine the bones themselves we performed the following experiments.

Nineteen rats, mostly mixed black and white and about seven weeks old, were placed on diet 3143 which, as previous experience has shown, produces rickets comparable in every respect to the rickets manifesting itself in human beings.

Nine rats were kept as control animals under ordinary laboratory conditions in a room completely screened with windows of ordinary glass (cage "R" animals). Ten rats were exposed to the radiation from a Hanovia mercury vapor quartz lamp (Alpine type) (cage "U-V" animals). One animal (16Y) in cage "R" was found paralyzed thirty-eight days after being placed on diet (age about eighty-eight days) and was killed. We have previously pointed out that the development of paralysis of the posterior extremities not infrequently occurs in rats fed on diet 3143. Another animal (26Y) was killed fifty-eight days after being placed on the diet (age about one hundred and eight days); and

the other seven animals were killed sixty-four days after being placed on the diet (age about one hundred and fourteen days). The animals in cage "U-V" (rayed animals) were exposed to the radiations at a distance of three feet for varying periods of time daily for sixty-four days and were then killed.

The rayed animals as contrasted with the control animals showed marked physical vigor as evidenced by growth, activity, good appetite, thick smooth coats and reproductive power.

Autopsies showed the rayed animals to be larger than the controls and to have great increase over the controls in the amount of fat deposition and muscular development. The rayed animals showed no evidence of rickets. The control animals showed enlargement of the epiphyses of the long bones, deformities of the thorax, enlargement of the costo-chondral junction and fractures of the ribs. Histological examination showed the long bones of the rayed animals to be normal and those of the control animals to have typical rickets.

The effects of the radiations of the mercury vapor quartz lamp on the growth and calcification of the skeleton of the rat and on the animal as a whole seem to be similar if not identical with those brought about by direct sunlight and by cod liver oil.

59 (1806)

Collodion sacs for aërobic and anaërobic bacterial cultivation.

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New York City.]

The collodion sacs demonstrated before this society a year ago,¹ while suitable for intraperitoneal implantation are not so well adapted to microbic cultivation *in vitro*. We have therefore been making sacs of 5-10 c.c. capacity in test tubes lined with a dried film of gelatin² which softens in warm water and permits the easy removal of the collodion membrane. The sac is slipped on to a supporting glass tube, inserted into one limb of a V-shaped

¹ PROC. SOC. EXPER. BIOL. AND MED., 1920, xviii, 92. *Jour. Exper. Med.*, 1921, xxxiii, 25.

² The 10 per cent. gelatin solution is preserved with 0.3 per cent. tricresol.