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Diet and tissue growth. III. The rate of compensatory renal enlargement after unilateral nephrectomy in the rat.

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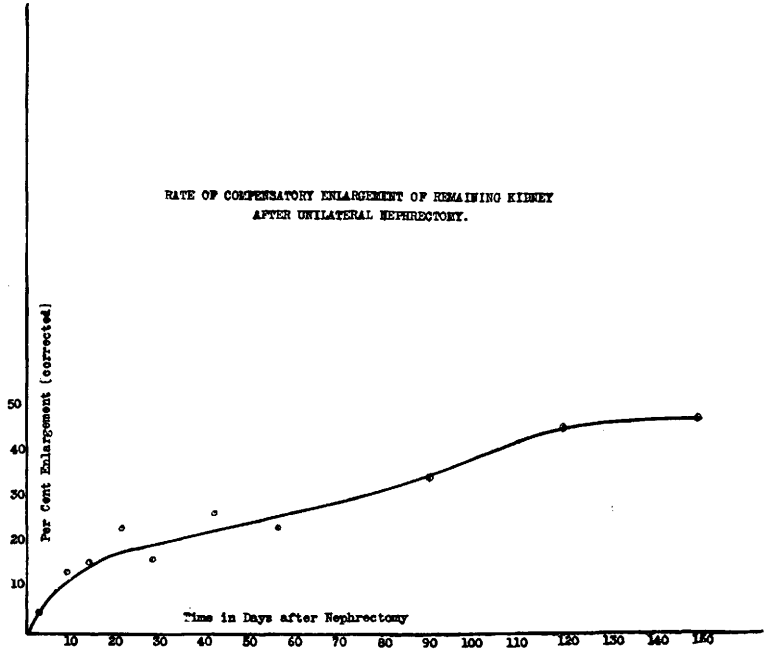
The investigations here reported were carried out incidental to a more extended study of kidney enlargement.

Mature rats were used in order to eliminate as far as possible the factor of increase in size of kidney correlated with somatic growth. The right kidney was removed under ether anesthesia with aseptic technic. At varying intervals, from 3 to 150 days (see chart), after nephrectomy, the rats were killed and the weight of the left kidney compared with that of the control rat. Since there was invariably a small change in the body weight of the rat in the course of the experiment, the final values for the degree of enlargement have been corrected for this factor on the



basis of Donaldson's values. The study here reported is based on observations on 125 animals.

The rats were given *ad libitum* a "synthetic" ration consisting of casein* 18 per cent, raw corn starch 51 per cent, lard 22 per cent, cod liver oil 5 per cent, salts[1] 4 per cent, and in addition 300 mg. dried yeast daily. This diet has been shown repeatedly to be adequate for maintenance and growth.

As may be seen from the chart, there is a rapid increase in the compensatory enlargement of the remaining kidney within the first 3 weeks. At this time the left kidney is about 20 per cent heavier than the control. From the 21st day to the 120th day there is a steady increase at a slower rate (approximately 3 per cent in 10 days) until the enlargement has reached 46 per cent of the control value. From the 120th day to the 150th day our data show no significant increase in size of the remaining kidney, which suggests that the limit of enlargement may have been reached in 120 days.

The enlarged kidneys have shown no gross or microscopic evidence of an anatomical injury.

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Chondrodystrophia in chicken embryos.

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During the routine examination of chick embryos which had died during incubation, we found in 1923 several embryos exhibiting a striking abnormality resembling the condition known in mammals as *Chondrodystrophia foetais* (Kaufman).* As far as our knowledge of the literature reaches, chondrodystrophia is here reported for the first time in bird embryos.

* The "washed" casein used contained 13 per cent nitrogen. The protein furnished approximately 13 per cent of the dietary calories.

[1] Osborne, T. B., and Mendel, L. B., *J. Biol. Chem.*, 1919, xxxvii, 557.

* Earlier terms used to designate the same condition are *achondroplasia* (Parrot) and *Micromelia chondromalacica* (Kirchberg-Marchand).