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A note on the parabiosis of rats and mice.[1]

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This study includes 50 parabioses between rats and mice, twenty of which were terminated before the fifth day by the death of one of the animals, usually the mouse. That is, only thirty lived sufficiently long to admit of a union, or to determine if a union would take place. Of this number twelve showed a more or less complete tissue connection. One pair lived twenty-eight days, but the majority died between the seventh and fourteenth days. This compares favorably with the mortality observed where mice alone were used.

The technique employed consisted in a peritoneal anastomosis from 2 cm. to 3 cm. long, and a skin muscle apposition for about double this distance. Young rats weighing about forty grams were used, with "growing" mice from a large breed. Additional sutures through the skin of the shoulder and neck and adhesive plasters about the body gave sufficient fixation.

The existence of a true anatomical union is based on: (1) histological studies; (2) recovery in a second animal of substances injected into the first; (3) hemorrhage from one animal through the dead tissues of the other (noted twice).

The healing process is not essentially different from that taking place in the individual animal, except that in some instances the inflammatory reaction is more marked and the development into scar tissue slower. The skin unites with much less frequency than the deeper tissues — five cases out of twelve in this series. In many animals which fail to unite there is an absence of suppuration and the line of demarcation between the two tissues is indicated by an indefinite narrow zone of necrosis.

Seven parabioses between rats were made for comparative study. In one of these pair of three weeks duration, after death of one of the animals, incision was made in the dead rat nearly a centimeter from the line of union. A definite capillary oozing resulted. An injection of India ink was made immediately through

[1] This investigation has been done under the George Croker Special Research Fund.

the aorta of the surviving rat and the oozing blood was replaced by the injected fluid. These injections have been continued in the study of rat-mouse parabiosis, but in the injections so far attempted our technique has not been sufficiently satisfactory to make the results conclusive.

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A demonstration of the inhibitory effect of magnesium upon normal and artificial peristalsis of the stomach and duodenum.

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Some years ago J. B. MacCallum[1] made the statement that purgation can be brought about by subcutaneous or intravenous injection of magnesium sulphate. He ascribed the effect to the stimulation of nerve and muscle tissue of the intestines by this salt, which thereby caused increased peristalsis.

In a paper by Meltzer and Auer[2] it was stated, however, that magnesium salts not only do not cause peristalsis, but directly inhibit it when normally present or even when aggravated by barium or physostigmin.

In opposition to this statement it was asserted in a paper by S. A. Matthews and D. E. Jackson[3] that after injection of magnesium sulphate the peristalsis shows no especial departure from the normal and barium and physostigmin show their usual action.

In order to obtain unbiased and incontestible evidence, the question was studied now by the graphic method. We employed for this purpose the following procedure. Rabbits only were used. A laparotomy was performed under anesthesia and a soft rubber catheter bearing a thin walled rubber ballon at its end, was introduced through an incision into the stomach and then pushed through the pylorus into a deep place in the duodenum. Another similar ballon was left in the stomach. All the incisions

[1] *Amer. Jour. of Physiol.*, 1903, x, 101.
[2] *Amer. Jour. of Physiol.*, 1906, xvii, 313.
[3] *Amer. Jour. of Physiol.*, 1907, xix, 5.