them with food masticated and well insalivated by other normal dogs.

4. The abolished gastric secretion is temporarily resumed by peritoneal or intravenous injections of extracts made of salivary glands of normal dogs.

5. This temporary resumption takes place even if the stomach be completely isolated from the central nervous system.

These observations justify the conclusion that normal gastric secretion depends upon the internal secretion of the salivary glands.

107 (250)

The influence of diuresis upon the toxic dose of magnesium salts.

By **S. J. MELTZER.**

[*From the Rockefeller Institute for Medical Research.*]

In the communication on the effects of subcutaneous injections of magnesium salts, John Auer and I stated that a dose of magnesium sulphate slightly larger than 1.75 gram per kilo is surely fatal for the rabbit. Lucas and I showed later that in nephrectomized animals the toxicity of the salts is greatly increased. At the April meeting I conducted an experiment demonstrating that in nephrectomized animals magnesium sulphate can become toxic even when given by mouth. These lines of experimentation have shown that the toxicity of magnesium salts depends upon the normal activity of the kidneys. I wish now to report the results of a series of experiments in which the effect of an increased renal activity was studied.

Briefly stated the results were as follows: A dose of 2 grams of magnesium sulphate per kilo is absolutely fatal for the rabbit; the animal dies of respiratory paralysis in less than an hour. All the animals recovered from the effects of such a dose, however, if an intramuscular injection of diuretin was given soon after the subcutaneous injection of the magnesium salt. Diuretin is theobromin and acts as a diuretic. The deeply narcotized animals usually urinate about fifteen or twenty minutes after its injection; by that time, at least, the bladder can be felt to be full. The largest dose

that should be given is about 0.1 gram. In larger doses diuretin itself is liable to become toxic.

In cases in which the dose of the magnesium salts exceeded 2 grams per kilo the injection of diuretin alone could not save the animals. But if in addition to the diuretin an intravenous infusion of 0.9 per cent. solution of sodium chloride was instituted, animals were seen to recover even from doses of magnesium salts amounting to as much as 2.25 grams per kilo. When still larger doses of magnesium salts were given the animals usually died of respiratory paralysis in less than fifteen minutes and before any diuresis could have been effected. However, I have seen animals recover even from doses of 2.5 grams per kilo if, in addition to the diuretin injection and the venous transfusion, artificial respiration was early resorted to. For doses larger than 2.5 grams per kilo all three measures together usually proved of no avail; with this dose the early death of the animal is usually due greatly to paralysis of the heart.

108 (251)

The toxicity of magnesium nitrate when given by mouth.

By **S. J. MELTZER.**

[*From the Rockefeller Institute for Medical Research.*]

It is a daily experience that large doses of magnesium sulphate can be taken by mouth without any other than a purgative effect. I have given to rabbits, by mouth, 7 grams or more of magnesium sulphate (in molecular solution) per kilo, without any unfavorable effects. The same applies also to magnesium chloride and some other magnesium salts. I have, however, discovered that magnesium nitrate when given by mouth is capable of producing a toxic effect like that of magnesium salts when introduced subcutaneously.

When a dose of 6 grams per kilo in molecular solution is given by mouth to a rabbit, the animal soon becomes paralyzed and narcotized and dies in thirty or forty minutes of respiratory paralysis. Fifteen or twenty minutes after the administration, the appearance and behavior of the animal is exactly like that of one which received magnesium sulphate subcutaneously (2 grams per kilo). A dose between 4 and 5 grams per kilo causes in general