

ment, the following differences were noted. If the parathyroidectomy was performed 6 hours before the experiment, the initial serum calcium was normal. Transfusing with decalcified blood brought the serum calcium below the tetany level more rapidly than in the series of experiments on normal dogs, *i. e.*, within one hour instead of between $1\frac{3}{4}$ or 2 hours. The symptoms in these animals were mild, however, and the cerebro-spinal fluid calcium was not reduced appreciably below normal at the end of the experiment. Furthermore, in spite of 18 transfusions, extending over 3 hours, the blood was still able to take up calcium *in vivo* if the transfusions were interrupted.

When the parathyroidectomy was performed 24 to 30 hours prior to the experiment, marked symptoms of tetany were brought on shortly after transfusions with decalcified blood were begun. The serum calcium could be kept at a lower level in such animals (1.3 millimols per liter). At the same time, the cerebro-spinal fluid calcium was found to be 1.4 millimols per liter.

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Effect of Calcium and Citrate Injections into Cerebrospinal Fluid.

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Sabbatini observed that the direct application of isotonic solutions of oxalate or of citrate to the exposed brain of dogs increased their excitability and at times resulted in a generalized convulsion.¹ This effect was antagonized by calcium. We have repeated and extended these experiments. Small amounts (0.1-0.3 cc.) of isotonic solutions of either sodium citrate (0.077 M), calcium chloride (0.107 M), calcium citrate (0.06 M), or magnesium chloride (0.107 M) were injected into the cisterna magna of dogs, using a fine needle (26 gauge).

A typical syndrome occurred following injections of sodium citrate, consisting of immediate contraction of the voluntary muscles of the neck, trunk, extremities and tail. The motor phenomena included an extensor rigidity of the legs, slightly greater in the fore legs than in the hind, and a marked opisthotonos, pleurothotonos,

¹ Sabbatini, L., *Revista sperimentale di freniatria*, 1901, **27**, 946.

and dorsal curvature of the tail. The heart rate slowed during this phase of the effect and was accelerated during the recovery period. Profuse salivation occurred. The intense motor excitation lasted usually from 5 to 15 minutes, but the animals were ataxic and had an unsteady wide-based gait for a somewhat longer period. In a minority of cases a generalized tonic and clonic convulsion followed the original motor spasm. The animals were usually normal 30 minutes after the injection.

In some of the experiments, the needle was left in the cisterna following citrate injection and, as soon as the motor reaction was obtained, calcium chloride or magnesium chloride was injected in amounts equivalent to the sodium citrate. The hypertonic muscles relaxed in a few seconds and within a few minutes the animal appeared to be normal.

Injections of Ringer's solution and sodium chloride in these small doses were without apparent effect. Injection of calcium citrate did not provoke a motor response.

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Influence of Salt Intake on Susceptibility of Albino Rats to Diets of Low Vitamin B Content.

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Fifty-six rats were used in the studies here summarized. Before the experiment they had been kept on a stock diet of Purina Fox Chow, Miller's Puppy Meal, and oats fed daily, with the addition of meat, cheese, and cabbage once or twice a week. Litter mates of the same sex, and as nearly the same weight as possible, were selected. The animals were divided into 2 age groups, one varying from 25 to 55 days and the other from 91 to 148 days.

The controls, including half the rats in each age group, received diet No. 1, consisting of starch 64%, casein 18%, butter 10%, salts 3% (Osborne and Mendel's mixture as prepared by Harris Laboratories) and yeast 5% (Fleischmann's bakers' yeast, fresh). The yeast is at least 70% water, and the amount given is evidently inadequate for vitamin B requirement, since we have found that rats kept on this diet invariably die within a few weeks. The ani-