

the total  $\text{NH}_3$  of the urine was increased. When the alkali and the acid were left out of the diet the normal level for the  $\text{NH}_3$  of the urine was reached in a short time.

c. Estimation of the  $\text{NH}_3$ -content of Ewald meal juice from 26 individuals with gastric disturbances, supposedly ulcers, was made and in only five of these was the  $\text{NH}$ -content markedly increased. In two of these cases the diagnosis of carcinoma of the stomach was made with certainty; in another case a diagnosis of ulcer with obstruction was made and in the remaining 2 cases a diagnosis of gastric ulcer was made. Further work is being conducted along this line with the view of determining the source and the significance of the gastric juice ammonia.

## II (1075)

### The action of heavy metals on the isolated intestine.

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In experiments with zinc which was used in the form of the malate and carried out on isolated segments of the intestines of cats and rabbits by the method of Magnus it was found that even low concentrations may produce depression of muscular activity. A solution  $N/20,000$  zinc malate, proved to be quite active in some experiments.  $N/10,000$  and  $N/5,000$  zinc malate produced, after a brief preliminary stimulation, considerable decrease and sometimes irregularity of the force of rhythmic contractions. Occasionally decrease of frequency and tonus were also observed.

When the segments of the intestine were suspended in pure Locke solution again, some improvement occurred, although it had been acted upon by zinc 45-70 minutes. In experiments with concentrations of  $N/1,000$  and  $N/500$  and sometimes even with  $N/2,000$  permanent injury to the tissues may be caused by the metal as no recovery could be observed when pure Locke solution was substituted for one containing zinc.

The action of nickel employed in the form of the acetate was also tested. Dilute solutions,  $N/10,000$  and  $N/5,000$  produced

temporary depression followed by recovery and sometimes stimulation while the intestine was still in the solution of the salt. Complete abolition of rhythmic contractions and decrease of tonus were observed when much higher concentrations were used, but the effect was not permanent in these experiments as recovery in pure Locke solution took place after the intestine had been suspended in  $N/500$  nickel acetate for twelve minutes. The reaction to pilocarpine and of barium was studied in experiments with both of the metals. The evidence obtained points to injury to nerve endings as well as of the muscle fiber, but the latter was in some experiments much more resistant.

12 (1076)

**A note on the failure of pituitrin to sensitize the sympathetic system.**

By R. G. HOSKINS (by invitation).

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In 1912 Kepinow published the conclusion that the injection of small quantities of pituitary extract "sensitizes" the point of attack of epinephrin.<sup>1</sup> His observations were that a given dose of epinephrin produced a greater mydriatic effect in rabbits and cats, a greater vasoconstriction in the Loewi-Trendelenberg frog preparation and a greater vasomotor effect in rabbits and dogs if immediately before hand a minimal dose of pituitary preparation had been injected. Kepinow's work has been quoted as the basis for a rather far reaching conclusion that the pituitary gland has normally the function of promoting the activity of the sympathetic nervous system.

In various researches on the vasomotor system we have had occasion to use pituitary extract in connection with epinephrin and nicotin and it became important to know to what extent sympathetic sensitization occurs. As our previous work has been done exclusively on dogs we have investigated the matter in this

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<sup>1</sup> Kepinow, *Archiv für experimentelle Pathologie und Pharmakologie*, 1912, LXVII, 247.