

preparation may have been faultily prepared or the presence of too large a quantity of enterokinase may have frustrated its own activity.

2. The injection of intestinal contents. Seven dogs received from 1 to 3.5 c.c. of duodenal contents into the pancreatic duct. In from twenty to thirty hours all succumbed, and all showed most extensive fat necrosis. In 4 the pancreas was the seat of extensive hemorrhage. In the other cases there was simple swelling of the gland, but microscopically all steps from simple parenchymatous degeneration to complete necrosis were observed.

3. In one instance 2.5 c.c. of the filtrate of a colon culture was injected into the duct. The animal after a few days' illness recovered, while a control which received the same subcutaneously died after a few hours.

4. Trypsin experiments. Seven animals were injected with solutions of trypsin and all proved positive. The lesions were as in the other experiments.

The most satisfactory results and the most extensive lesions were obtained with duodenal contents. As explained under the experiments with intestinal mucosa extract, it is hardly possible that the bacteria present could be responsible for the lesion. Nor can the oil, blood, bile, fatty acids or other substances, all of which are present in very small quantities, be an important factor in the light of previous experiments by numerous authors. It is known that a very small amount of enterokinase will activate a large amount of pancreatic secretion, and the uniform positive results following the injections of trypsin indicate that the mode of action of the duodenal contents is by causing such a conversion.

An Experimental Investigation of Sahli's Desmold Reaction.—SAITO (*Berl. klin. Woch.*, 1906, xliii, 1305). Sahli has suggested a method of ascertaining the functional efficiency of the stomach, depending upon its ability to digest catgut. Small rubber bags are filled with methylene blue or salicylic acid or iodoform and tied with catgut strings. One of these is administered after a meal and the time ascertained when the substance appears in the urine or sputum. Alexander and Schlesinger have shown that various substances are excreted by the same patient in different lengths of time, and in making comparisons a given substance must be constantly used. In disturbed gastric activity there is a distinct lengthening of the reaction time, most noticeable in subacidity or anacidity. Three factors are of importance in the reaction: (1) The solution of the catgut; (2) absorption of the drug; (3) its excretion. The third factor Saito allows to be constant in normal individuals, and proceeds to an examination of the other two. By a large number of experiments he shows that although catgut is not digested by pure pancreas secretion nor by pancreas secretion and gastric juice, nor by gastric juice and intestinal secretion, yet the mixture of pancreas secretion and intestinal extract will dissolve it in from six to twenty-seven hours. In cases of lost gastric secretion the desmold, therefore, may still appear. Allowing that in a given case the catgut is dissolved in the stomach, there are other factors which may interfere with the correct interpretation of results. Saito shows that the rapidity of solution of the catgut depends upon the concentration of the digesting fluid, and

this varies with the amount of food taken, the quantity of juice secreted, and the mechanical mixing power of the stomach. These factors, of course, are very variable and are difficult to control. In regard to the absorption of the drug he shows that methylene blue and iodoform are taken up only in the intestine. They must be discharged from the stomach before the reaction can appear. The motor function of the stomach, therefore, is an important factor. He concludes that the desmoid test is influenced by so many uncontrollable factors that it is of little use in diagnosis.

The Improvement Caused in Leukemia by Intercurrent Infections.—FUNCK (*Berl. klin. Woch.*, 1906, xliii, 1308) reports a case of myeloid leukemia with attacks of renal colic caused by the impaction of masses of uric acid crystals in the ureter. The blood was examined with care and particular emphasis laid upon the differential enumeration of the polymorphonuclear cells according to the method of Arneth. Arneth classes the polymorphonuclear cells according to their age; the more lobules the nucleus possesses the older the cell. Those with only indented nuclei he puts in Group I; those with two lobules, in Group II, and so on. He thinks that the ripe leukocytes are the ones that succumb first to an infection and by their disintegration supply antibodies. The patient, a young man, aged twenty-eight years, showed at his first visit an enlarged spleen, slight swelling of the cervical, submaxillary, and inguinal glands, and with the fluoroscope enlarged bronchial glands. The hemoglobin was 48 per cent.; the red cells, 2,930,000 with 5 per cent. of erythroblasts; the leukocytes 86,000, of which 48 per cent. were neutrophile; 28 per cent. eosinophiles; 11 per cent. mastzellen; 13 per cent. lymphocytes. 22 per cent. of the neutrophiles were myelocytes. Under x-ray treatment the leukocytes fell after one and a half months to 12,800, and the neutrophiles showed a marked improvement according to Arneth's definition. There were then 84 per cent. of neutrophiles, of which only 3 per cent. were myelocytes. The polymorphonuclear leukocytes of the first class fell from 57 to 11 per cent.; of the second rose from 37 to 52 per cent.; of the third, from 5 to 33 per cent.; of the fourth, from 0 to 4 per cent. X-ray treatment was then stopped and under arsenic improvement continued. On May 26, two months after he was seen, the patient had an attack of colic associated with infection of the renal pelvis. During the four days after the attack the number of leukocytes rose, and varied from 22,000 to 26,800. On the fifth day they fell to 10,600; on the sixth to 4200; on the seventh to 5000. On the tenth day they again went to 10,800 and continued over 10,000. In a table Funck furnishes, great improvement is shown during the rise in the number of white blood corpuscles, the neutrophiles rising, the myelocytes falling, and the polymorphonuclear cells going into the higher classes. With the drop in the number of leukocytes, however, is shown a most remarkable fall in the number of neutrophile cells, a drop from 86 per cent. to 12 per cent., and an equally remarkable rise in percentage of myelocytes from 0 to 82 per cent. At the height of the leukocytic reaction all polymorphonuclear cells but those of Class I had disappeared from the blood, Class IV dropping from 61 per cent. on the fourth day to 0 per cent. on