After the rabbits had received the prescribed amount of the drug, they were killed by intravenous injection of air. The liver, spleen, lymph-nodes and bone marrow were removed and immediately fixed in Zenker-formol solution (10% formalin). The sections were stained with hematoxylin and eosin. The results of the blood counts and histologic examination of the organs are shown in the accompanying tables. There was no appreciable effect on the body temperature or body weight as compared with the control animals.

It is to be noted that although the amount of either urea stibamine or neostibosan given to these experimental animals is far in excess of the usual amount given to patients for the treatment of kala-azar, yet neither the total white blood cells nor the granulocytes showed any significant decrease throughout the period of observation (Table I). On the other hand in these animals, there was hyperplasia of the spleen, lymph-nodes and bone marrow (Table II). In rabbits 7 and 14, there was cirrhosis of the liver and in rabbit 14 there was proliferation of the bile capillaries. Neither of the control animals presented similar changes. It should be pointed out that inasmuch as the controls did not receive the solvent of these drugs, this part of the experiment was not adequately controlled. Nevertheless, from the results obtained, it is concluded that repeated injections into normal rabbits of large amounts of urea stibamine and neostibosan did not produce in their peripheral blood anything resembling acute agranulocytosis.

7754 P

Blood Diastase as an Indicator of Liver Function.

MICHAEL SOMOGYI.

From the Laboratory of the Jewish Hospital, St. Louis.

The method developed in this laboratory for the estimation of diastase in biological material satisfies 2 essential requirements: it yields accurate quantitative results, and is sufficiently sensitive to permit the determination of very small quantities of the enzyme.

The quantity of the enzyme we express as the amount of reducing matter, in terms of glucose, which is produced by a known amount of the enzyme-bearing material under standardized conditions. As applied to blood, when we state that the diastase value of human blood serum is on an average 120, this means that 100 cc.

of serum, incubated with 1.5% starch paste for ½ hour at 40°, produces a quantity of reducing matter which in regard to reducing capacity is equivalent to 120 mg. of glucose. The determination is actually carried out with 1 cc. of plasma (or serum), which is incubated with 5 cc. of starch paste and 2 cc. of a 1% NaCl solution for 30 minutes, and subsequently deproteinized by our copper method. The reduction value determined in the filtrate, minus the original sugar content of the plasma, represents the diastase value. From the normal average figure of 120 considerable deviations are found in either direction. The lowest value is, with very few exceptions, 80, the highest about 180. But, while individual variations spread over a considerable range, the blood diastase of one and the same individual shows a remarkably constant level; it is, moreover, largely independent of nutritional factors and does not change even over periods of months and years.

During the past 2½ years we have been running blood diastase determinations on nearly 100 healthy persons and several hundred hospital patients, in order to gather information in regard to possible deviations from the normal values. At this occasion we wish to deal only with conditions in which the diastase level is subnormal. As regards conditions which entail considerable augmentation of the blood diastase, fruitful studies have been conducted by previous workers. As to subnormal diastase values and their possible significance, however, few if any reliable observations were made, due, we believe, to the fact that the methods available would not only have failed to determine the low diastase values accurately, but also might have failed to permit the detection of these small values.

Early in the course of our work we found markedly low diastase values, ranging from 10 to 70, in icteric bloods and in the blood of pneumonia patients. Subsequently similar values were found in cases of toxemia of pregnancy, and regularly in connection with hepatitis, cirrhosis, abscess and carcinoma of the liver, as also with numerous cases of cholecystitis. Eventually we were led to the assumption that low blood diastase is found only in cases in which some form or other of liver damage, and consequent impairment of liver function, is present.

Clinical observations as well as histological examinations, performed after operations and autopsies, fully support our theory. In some cases the low level of blood diastase directed attention to liver pathology even before the existence of the pathological condition was revealed by the clinical picture. Again in other cases the fact that the blood diastase was normal was helpful in ruling out

liver damage. Successful medical or surgical treatment of pathologic liver conditions was in every instance promptly followed by a rise of the subnormal diastase level which soon attained a normal value.

7755 P

Influence of Certain Foodstuffs on Lesions of Endamoeba Histolytica Infection.*

ERNEST CARROLL FAUST, L. C. SCOTT AND J. C. SWARTZWELDER.

From the Department of Tropical Medicine, Tulane University, New Orleans, La.

It has been shown[1, 2] that raw liver and liver extract are distinctly beneficial to dogs suffering from acute amebic enteritis. On the other hand, ventriculin was found to be consistently harmful to the host. Furthermore, one of us (E.C.F.) discovered several years ago that dogs which were resistant to amebic infection on a balanced diet, could usually be infected when they were fed canned salmon. Our present inquiry is directed to the nature of the complex relations produced by these 3 foodstuffs on the wall of the large intestine, when the host has amebic enteritis. This report outlines our findings up to the present time and offers no explanations for the results obtained.

Twenty-six healthy young dogs have been used in the study. None were naturally infected with amebae. All were inoculated intracecally[3] with the same human strain of *Endamoeba histolytica.* All were suffering from acute amebiasis of a few days' standing when the tests were made. Fresh pig's liver, ventriculin (furnished by Parke, Davis and Co.) and commercial canned pink salmon (grade B) were the foodstuffs employed. Only one animal died; the remainder were sacrificed.

In the liver series 150 gm. of unchopped raw liver were fed to one animal daily. Clinical improvement began about the ninth day, and on sacrifice 13 days later only a few small shallow amebic lesions were found in the cecum and rectum. In contrast, when only 60 gm. of finely chopped liver in liver juice were fed to the

* Aided by a grant from the David Trautman Schwartz Research Fund.

1 Kagy, E. S., and Faust, E. C., PROC. SOC. EXP. BIOL. AND MED., 1930, **28**, 252.

2 Faust, E. C., and Kagy, E. S., *Am. J. Trop. Med.*, 1934, **14**, 235.

3 Faust, E. C., *Porto Rico J. Pub. Health and Trop. Med.*, 1931, **6**, 391.