SCIENTIFIC PROCEEDINGS

ABSTRACTS OF COMMUNICATIONS.

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President Gies in the chair.

105 (1283)

The estimation of cholesterol in blood.

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The methods which are in use at present for the colorimetric estimation of cholesterol in blood are either time-consuming or of questionable accuracy. In connection with a study of the blood lipoids in obesity, it seemed necessary to investigate further the question of a suitable cholesterol method. For some time now we have employed a procedure which is comparatively simple and we believe to be very satisfactory.

The method consists essentially in mixing one c.c. of whole blood, plasma or serum with 4–5 grams of plaster of Paris, drying, and extracting the powder directly with chloroform in a special extraction apparatus. The plaster of Paris is emptied into a small paper extraction shell (4 cm. long) and this inserted in a short test tube (2.5 x 6 cm.) in the bottom and sides of which are a number of small holes. This is now attached to a large cork on a small reflux condenser and the tube and cork inserted in the neck of a 150 c.c. extraction flask containing about 20–25 c.c. of chloroform. Extraction is continued for 30 minutes on an electric hot plate, the chloroform made up to some suitable volume, such as 20 c.c., filtered if necessary, and colorimetric estimation carried out with the aid of the Liebermann-Burchard reaction, according

to the technique of Grigaut and of Autenrieth and Funk. Brown colors do not develop as with the Bloor method. An aqueous solution of naphthol green B, which is permanent, is used as standard.

Since the cholesterol esters give the color reaction, as pointed out by Bloor, saponification is unnecessary. With this method perfect duplicates and quantitative recoveries of added cholesterol and cholesterol esters may be had. The results are considerably lower than those obtained with the Bloor method.

106 (1284)

Morphin hyperglycemia as a test for pancreatic deficiency.

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We found that the subcutaneous injection of one or two milligrams of morphin sulphate per kilo in dogs whose pancreatic substance had been strongly reduced by coagulation *in situ*[1] or by partial resection, caused a much greater rise in the blood-sugar level than the same dose in normal controls.

The following table gives the results of some of our experiments. It will be seen that the animals in which the pancreatic tissue had been reduced (AK5, 32, 37, and BD3) showed an increase in the blood-sugar three to four times greater than that obtained in the controls after the same dose of morphin.

As these animals with deficient pancreatic tissue may legitimately be considered in a prediabetic state, the morphin hyperglycemia observed in them may be of importance clinically in detecting individuals with an impaired carbohydrate metabolism. That this impairment need not be great and yet yield a strong hyperglycemia to a small dose of morphin is indicated by the fact that our dogs whose pancreatic tissue had been largely coagulated nevertheless showed a surprisingly good tolerance for sugar. In six tests where 10 grams of dextrose per kilo were fed, and in two where 4 to 5 grams of dextrose per kilo were injected subcutaneously, the amount excreted was nothing in two tests; less than

[1] J. Auer and I. S. Kleiner, these PROCEEDINGS, 1917, XIV, 151.