This removal was performed in two stages. First, the entire large intestine was separated from the mesentery by means of an abdominal incision, and the abdomen closed. The entire colon was then withdrawn through the anal opening, by a modified Whitehead operation, care being taken not to injure the anal sphincters. The end of the ileum was sutured to the anal mucosa.

After the operation, the dogs were kept on a milk diet for about a week, and then placed on an ordinary mixed diet. Most of the dogs died from shock or intercurrent infections, or were killed for pathological study at the end of from one to two weeks. One dog, however, was kept for three-and-a-half months.

This dog showed a rapid loss of weight during the first two weeks following the operation, after which it slowly gained in weight till the end of the experiment. The dog apparently suffered no inconvenience from the operation, other than that from the frequent passage of semi-liquid stools.

At autopsy this dog showed no pigmentation of the internal organs that could be detected macroscopically. Frozen sections and celloidin sections of the spleen, liver, pancreas, small intestine, kidney, bone-marrow and heart muscle showed no pigment deposits. No iron-containing pigment could be detected in these organs by the Berlin blue reaction.

The total removal of the large intestine in dogs, therefore, apparently does not produce a recognizable degree of haemochromatosis within a period of three-and-a-half months.

Experiments extending over a longer period of time will be reported later.

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Variations in the total cholesterol content of the blood serum in pernicious anaemia and pneumonia.

By **H. A. KIPP** (by invitation).

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Pernicious anemia and pneumonia are pathological states in which the cholesterol content of the blood is known to be altered during the course of the disease. In pernicious anemia, the cholesterol content of the serum is depressed to a varying

degree below normal, paralleling the severity of symptoms, the diminution in the erythrocyte content and hemoglobin percentage of the blood. In view of the fact that cholesterol has been shown to possess the property of neutralizing the hemolytic action of various materials, animal and vegetable toxins, an increase in the severity of symptoms in pernicious anemia with the depression of this substance in the blood serum suggests the utilization of this antitoxic property against the unknown hemolytic toxins which are present in the body in this disease.

The transfusion of whole blood from a donor whose serum cholesterol content was relatively high, was apparently without permanent influence on the cholesterol content of the serum of the pernicious anaemia patient, regardless of the clinical improvement which was temporarily manifest. It may be that the additional cholesterol added in the infused blood contributes in a degree to the temporary clinical improvement of the patient, although the cholesterol level in the blood serum is maintained at a low figure and is again lowered with a relapse of the symptoms.

In pneumonia, the cholesterol in the serum was found to follow a variation dependent upon the severity of the disease, the amount of involvement of the lung tissue and development of the pneumonic exudate in the inflammatory process which follows the bacterial invasion. There is a primary depression of the cholesterol content of the serum in the first few days of the disease. This depression seems to be dependent upon the severity of the disease and particularly upon the degree of involvement of the lung tissue by the inflammatory process. With the development of an empyema, the cholesterol content of the serum remains lowered until this process of inflammation is resolved. With the convalescence of the patient and particularly with resolution of the exudate in the lung, there is a rise in the cholesterol content of the serum which amounts to a hypercholesterinaemia. This rise apparently parallels the resolution of the inflammatory exudate which has been shown to contain a considerable amount of cholesterol. The variation in the cholesterol in serum parallels the activity of the phagocytic leucocytes and owing to its colloidal nature and consequent relative indiffusibility, the transportion of the cholesterol to the area of inflammation is dependent upon

the leucocytes which, as pus cells, have been shown to contain a considerably greater amount of cholesterol than the normal leucocytes.

Analysis of empyema exudates showed that the greater part of the cholesterol is contained in the cellular portion of the exudate. The fluid portion of exudates contains even less cholesterol than normal serum or exudates in the pleural cavity which contain relatively few cells.

Since the activity of the leucocytes is an important factor in the resistance to and recovery from pneumonia, the association of the variation of the cholesterol with the activity of the leucocytes seems to indicate the rôle which cholesterol plays on leaving the blood serum in acute infections. Carried by the leucocytes to the site of the active inflammatory process, cholesterol is available for the neutralization of bacterial toxins and poisons arising from the disintegration of tissue and exudate in the process of resolution of the pneumonic exudate.

16 (1598)

Effect of antipyretics on memory and behavior of albino rats.

By **D. I. MACHT** and **WM. BLOOM.**

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Studies were made by the authors on the behavior of white rats in Watson's circular maze. All the drugs were administered by subcutaneous or intraperitoneal injections. The following drugs were studied; acetanilid, acetphenetidin, antipyrin, pyramidon, sodium salicylate, phenyl salicylate or salol and quinine sulphate.

Acetanilid was administered in doses from 1 to 5 milligrams and was found to produce depression. Phenacetin also produced depression but not to the same extent. Salol in small doses produced no effect; larger doses (5 milligrams) caused slight depression. Sodium salicylate caused slight depression. Quinine produced depression when administered in doses from $2^1/_2$ to 5 milligrams. Antipyrin was found to be most depressing of all even when the doses were 2 milligrams. Pyramidon was also depressing but not to the same extent.