chætes; while every mouse tumor that has been put through the Levaditi method shows the presence of these organisms.

Neither Löwenthal, nor Gaylord, nor I have claimed that these spirochætes are the cause of mouse tumors, nor have we claimed that spirochætes are the cause of human carcinoma. We have always held to the parasite theory of cancer, however, and the thus far invariable presence of *Spirochæta microgyrata* certainly gives us no reason to change our position. In view of the small number of spirochætes present, it may be pointed out as significant that of the thirty-seven primary tumors with which we have dealt, only two have been transplantable.

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On the competency of the venous valves and the venous flow in relation to changes in intra-abdominal pressure.

By **RUSSELL BURTON-OPITZ.**

[*From the Physiological Laboratory of Columbia University, at the College of Physicians and Surgeons.*]

In the present series of experiments performed upon dogs, the blood flow in the femoral vein was measured by means of the recording stromuhr, described by the author.[1]

During the experiment the intra-abdominal pressure was suddenly raised either by pressure with the hands upon the external surface of the abdomen, or by inflation of the cavity with air.

In both cases a retardation of the venous inflow was noticed, the degree of the slowing of the blood stream being in accordance with the increase in the intra-abdominal pressure. Thus, in one specific instance the intra-abdominal pressure was raised to 70 mm. Hg. The venous pressure increased accordingly from 4.5 mm. to 64.0 mm. Hg, while the blood flow decreased from 1.02 c.c. to 0.08 c.c. per second.

A similar retardation occurred also with the chest widely opened. Raising the intra-abdominal pressure produced no marked influence upon the flow in the external jugular vein.

A more abrupt and decisive slowing of the blood stream occurred, when pressure was exerted with the hands. It then became possible at times to produce not only a stoppage of the

[1] This volume, p. 24.

flow, but also a slight backward movement, such as can be accounted for by the stretching of the venous valves.

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On vaso-motor nerves in the pulmonary circuit.

By **RUSSELL BURTON-OPITZ.**

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To test the existence of vaso-motor nerves in the pulmonary circuit, the following method was devised: The inlet tube of the stromuhr, recently exhibited by the author before this society,[1] was connected with a receptacle containing Ringer's solution and the outlet tube with a button cannula, to be inserted subsequently into the pulmonary artery of dogs. The chest wall having been resected, loose ligatures were placed around the nerves in the vicinity of the ganglion stellatum and the pulmonary artery. A cannula was inserted into the appendix of the left auricle.

The procedure was as follows: Long forceps-clamps were quickly placed upon the central portion of the pulmonary artery, and transversely across the left auricle close to its junction with the left ventricle. The button cannula having been inserted into the pulmonary artery distally to the clamp, the blood-vessels of the lungs were then supplied with circulating fluid from the receptacle and drained by way of the cannula in the left auricle. Thus, all influences of the heart which might have disturbed vaso-motor reactions in the pulmonary circuit were excluded.

A change in the flow directly attributable to vaso-motor influences, could not be obtained by stimulation of any of the aforesaid nerves. Stimulation of the vagus in the neck, as well as centrally and distally to the ganglion stellatum, was ineffective.

In view of these negative results, it seemed advisable to test the influence of adrenalin upon the flow through the pulmonary blood-vessels. A T-tube was inserted between the stromuhr and the button cannula, through which solutions of different strengths were injected. In spite of the fact that these solutions had pro-

[1] This volume, p. 24.