The urinary nitrogen likewise showed a considerable diminution when 50 per cent. alcohol was administered. The total nitrogen decreased 12 per cent. When the quantity of alcohol was increased, however, the nitrogen failed to undergo a corresponding diminution — our analysis showed a decrease of only about 4.4 per cent. as compared with the control period. The average daily output of nitrogen remained practically the same during the 10 days of the after period. We have also made determinations of the urinary chlorides. The influence of alcohol was plainly evident and was similar to that on the other urinary constituents. The chlorides decreased 17–22 per cent. but they practically returned to normal in the after period which was continued for 10 days.

As was mentioned before, these particular results were obtained in the analysis of the urine of one dog. Whether alcohol behaves the same in other individuals remains to be seen. There are some indications, however, that not all dogs react alike to alcohol.

Table showing the influence of alcohol on the composition of dog urine. Average daily output in grams.

		Alcohol period.		
	Fore period.	50 per cent.	70 per cent.	After period.
Total nitrogen	5.5856	4.9066	5.2846	5.259
Total sulphur	0.3368	0.2553	0.2978	——
Neutral sulphur	0.0917	0.1035	0.1402	——
Inorganic sulphur	0.2081	0.1334	0.1442	0.2187
Ethereal sulphur	0.0371	0.0185	0.0133	0.0067
P_2O_5	0.8016	0.5526	0.5730	0.6959
Chlorides	0.3872	0.3000	0.3210	0.3631

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Spirochæta microgyrata (Löw) and mouse tumors.

By **GARY N. CALKINS.**

[*From the Department of Zoology, Columbia University.*]

A black female mouse purchased from a breeder in New York City and belonging to a set of from 200 to 300 mice under observation by Mr. Horton of Columbia, in experiments on Mendelian inheritance, developed a tumor on the right fore leg. The shoulder and axilla were involved and the mouse could not use the leg in

walking. At one point the hair had been scratched off and the skin bared but the tumor was not ulcerated. On removing, there was no evidence of hemorrhage and a solid tumor about the size of a hickory nut and weighing about 4 grams was taken out. It had become attached to the skin but was apparently not attached elsewhere. A piece of the tumor weighing about 1½ gram was ground up with normal salt solution (3 c.c. normal salt to 1 gram of tumor material) and this was injected under the skin of the neck in twelve white mice. The remainder was fixed in 10 per cent. formalin and in Zenker's fluid. No tumor has yet appeared in the inoculated mice.

Dr. Ewing described the tumor from sections as an adenoma with glandular characters of the thyroid. Necrotic areas are few in number and very small; mitotic figures are rare.

Sections of the tumor put through the Levaditi silver nitrate method reveal the presence of *Spirochæta microgyrata.* The spirochæte is not widely distributed but may be found at various points in the tumor mass, especially in the few small vacuolar areas. It has the characters of the species described by Löwenthal in 1905 in a case of human ulcerated carcinoma. It varies in length from three to eight microns and has from four to thirteen turns or "nodes," the average length of a node being six tenths of a micron. The undulations are steep and closely pressed as indicated by the specific name *microgyrata.* In view of certain minor differences in staining power and habitat, I have given this organism a new variety name.[1]

This is the tenth primary mouse tumor in which *Spirochæta microgyrata* has been observed. The first in which it was described was a tumor in a mouse from Granby, Mass. In that tumor the spirochætes were much more numerous than in the tumor now described; the necrotic areas of the former tumor mass were more extensive and much more numerous than in our tumor and it had more of the characteristics of carcinoma than ours.

In all primary tumors the spirochætes are much less numerous than in the transplanted tumors of the Jensen series. In the latter, especially in those strains giving a yield of 80 per cent. to 90 per cent. on inoculation, the tissues are fairly riddled with these spiro-

[1] See *Journ. of Inf. Diseases*, March, 1907.

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.**

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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.