

from *Veratrum album*. Each dose was given in one to three glasses of water, and usually no gastric irritation resulted. However, all patients complained of fullness and throbbing in the head when the pulse rate reached its minimum. The following conclusions appeared to be justified from the data thus far obtained.

1. The therapeutically effective dose of the tincture of veratrum album for adults ranges from 30 to 75 minims (administered in doses of 10 to 15 minims, an hour apart).

2. Clinically, the effects of veratrum resemble the pharmacological, and consist of a slowing of the pulse rate amounting to 12 to 42 beats per minute and a fall of systolic blood pressure amounting to about 39 mm.; of the diastolic 32 mm. The two hypertonus cases showed an average systolic fall of 49 mm.; of diastolic 8.5 mm.

3. The circulatory effects produced by veratrum take place independently of the "toxic" symptoms, such as nausea and vomiting.

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The effect of phlorhizin on tumors in animals.

By F. C. WOOD and E. H. McLEAN.

[From Columbia University, George Crocker Special Research Fund, F. C. Wood, Director.]

In 1914 Benedict and Lewis¹ reported the cure of malignant tumors in rats by the induction of glycosuria by phlorhizin. During the past few months similar experiments have been carried on in the laboratory of the Crocker Fund, using the same tumor—Buffalo rat sarcoma—and a progressively growing, highly malignant mouse carcinoma. In addition, seven mice bearing spontaneous tumors have been treated. The treated animals were kept on a diet of meat and lard, as in the experiments of Benedict and Lewis. The rats received subcutaneously 0.003 gram phlorhizin in olive oil, and the mice 0.001 gram, at two or three day intervals; and the collected urines were examined frequently at the end of the second or third day after injection, and found to give positive Fehling reaction.

¹ PROC. SOC. EXPER. BIOL. AND MED., 1914, XI, 134.

Treatment was begun seventeen days after inoculation with the tumor, except in the cases of a few animals which were treated on the tenth day, and of a few which were first rendered diabetic and then inoculated. None of the tumors at the beginning of treatment had reached the size of the largest tumors reported cured by Benedict and Lewis.

Of the rats, there were alive twenty-four days after inoculation and seven days after beginning of treatment, 81 treated animals and 89 controls. Of the treated rats, 37 per cent. showed partial or subsequently complete absorption, while 58 per cent. of the controls had undergone spontaneous absorption. The largest tumor to disappear was among the controls and measured 26×14 mm. The largest growth noted occurred among the animals rendered diabetic before inoculation.

The laboratory stock of Buffalo rat sarcoma for the past fifteen months, representing over five hundred tumors, has showed 40 per cent. spontaneous absorption.

The mice with the transplantable carcinoma showed no cases of absorption, and those treated did not differ from the controls except in the death rate. The spontaneous tumors were not affected by the treatment.

In view of the great tendency of the Buffalo rat sarcoma to undergo spontaneous absorption and the failure of the treatment in progressively growing tumors, the results of Benedict and Lewis must be considered as due to spontaneous absorption rather than to the effect of induced diabetes.

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A new principle in isolation of spirochetes in pure culture.

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In attempting to obtain pure cultures of spirochetes from the lesions of rabbits showing symptoms of generalized lues, I was confronted with extreme difficulties in the case of two strains