

extracts of normal adult tissue, Rous sarcoma for tumour extracts. Young tumours, about olive size, without visible necrosis, were selected. The finely minced normal and malignant tissues were each extracted in four times their volume of Tyrode. The resulting extracts were used in their original concentration. The stimulating action of extracts was tested quantitatively on fibroblast cultures grown in Carrel flasks, prepared according to the standard technique. The growth-rate of the colonies was measured daily, according to the method of Ebeling, over a period of seven days. The medium was not changed during this period. The fibroblast colonies in both cases were uniform and regular in structure but the cells growing in tumour extracts were somewhat more granulated.

Our experiments showed that the growth-activating effect of the sarcoma extract is certainly not greater, but on the average rather weaker, than that of adult muscle extracts. The mean for the growth-activating effects of the tumour extracts is about 75 per cent of the latter.

The peculiar behaviour of malignant cells in the organism is, therefore, obviously not to be found in any unusually high growth capacity of these cells, or in any unusually high amount of growth-promoting substances in neoplastic tissue. In order to explain the autonomous growth of the malignant cell it is necessary to postulate some intrinsic change in the mechanism which in the body normally controls and holds in check this ever-present growth potentiality.

Details of our experiments will appear elsewhere.

R. S. HOFFMAN.
E. TENENBAUM.
L. DOLJANSKI.

Department of Experimental Pathology,
Cancer Laboratories,
Hebrew University,
Jerusalem.
Nov. 26.

¹ Fischer, A., "Gewebezüchtung". Müller and Steinlecke, München (1930).

² Hoffman, R. S., Goldschmidt, J., and Doljanski, L., *Growth*, 1, 223 (1937).

³ Carrel, A., and Burrows, M. T., *J. Amer. Med. Assoc.*, 56, 32 (1911).

⁴ Carrel, A., *J. Exper. Med.*, 17, 14 (1913).

⁵ Carrel, A., *C.R. Soc. Biol.*, 92, 477 (1925).

⁶ Mottram, J. C., *Brit. J. Exper. Path.*, 6, 53 (1925).

⁷ Biscoglio, V., *Z. Krebsforsch.*, 23, 340 (1926).

⁸ Drew, A., *Brit. J. Exper. Path.*, 8, 176 (1927).

⁹ Trowell and Willmer, E., *J. Exper. Biol.*, 16, 60 (1939).

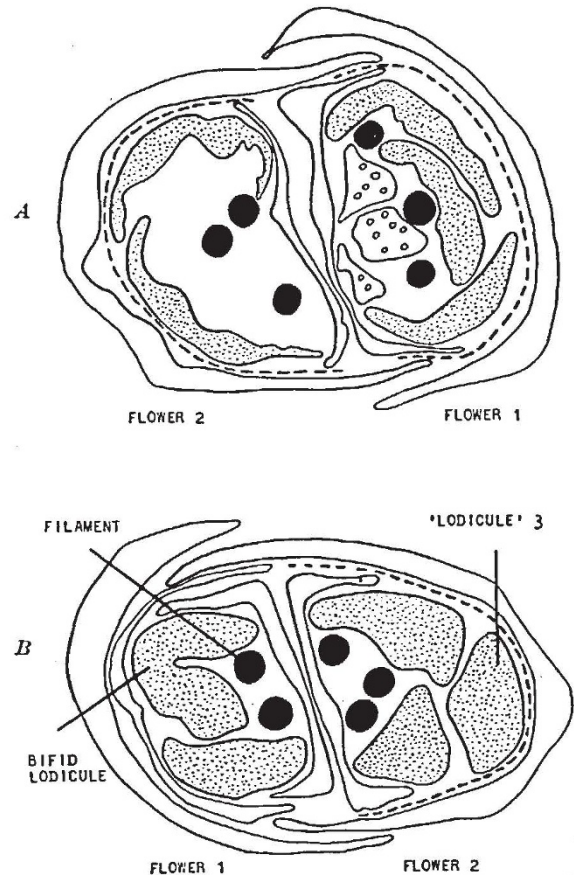
¹⁰ Hoffman, R. S., Tenenbaum, E., and Doljanski, L., *NATURE*, 143, 764 (1939).

Stamen Lodicules in Maize

AMONG some maize plants (Sutton's White Horse Tooth) originally planted in connexion with other work, there appeared one which bore anomalous male flowers the morphology of which may be worth recording. In the tassel of this plant, in a considerable number of cases, the lower flowers in each spikelet possessed only two stamens; sections showed that often both flowers in the spikelet were abnormal.

A illustrates a spikelet in which flower 1 has three 'lodicules' and three stamens, while flower 2 is normal. B shows flower 1 with two 'lodicules' (one of which is bifid at the tip) and two stamens, while flower 2 has three 'lodicules' and three stamens. In both flower A1 and B2 the 'extra lodicule' is united with the anterior stamen towards the base. In flower B1 the anterior part of the bifid lodicule would seem to represent the missing anterior stamen.

Thus the 'extra' lodicule does not seem to represent the 'missing third lodicule' of the grass flower but appears to be a replacement of or an outgrowth from the anterior stamen, and would come under the category of what Arber¹ has called stamen-lodicules and recorded for the bamboo *Cephalostachyum*, where it is also the front outer stamen which most frequently becomes lodicular.



Small quantities of material, so far as available, will gladly be sent to anyone desiring it on receipt of stamps for postage.

Thanks are due to Dr. A. Arber, of Cambridge, and to Prof. P. Weatherwax, of Indiana, for their kindness in examining and commenting on the material and slides.

B. C. SHARMAN.

Botany Department,
University,
Leeds, 2.
Nov. 21.

¹ Arber, A., "Gramineae II", *Ann. Bot.*, 41, 56 (1927).

Effect of Suint on Sheep Dips

EXPERIMENTS carried out in this Department have shown that the addition of wetting agents to an arsenic dip results in a decreased retention of arsenic in the fleece; the wetting agent causes the dip to penetrate the fleece more readily, but it also facilitates drainage from the fleece after immersion. Suint, the water-soluble matter in sheep's wool, is well known