tion of the sciatic nerve caused a contraction in the quadriceps muscle of a Sherrington preparation instead of inhibiting the tone in this muscle.

By Sherrington's scheme for reciprocal innervation these observations can be best explained. Since, according to this scheme, the extensor motor neurones are inhibited during the flexor reflex, the simultaneous stimulation of afferent nerve fibers for extensor reflexes (*e.g.*, for the extensor thrust) running in the stimulated branch of the sciatic nerve, normally remains without effect. If the internuncial neurones transporting the impulses inhibiting the extensor motor neurones were damaged, it must be expected that the flexor and the extensor reflexes would occur at the same time. Thus the abolition of reciprocal innervation by asphyxia strongly supports the assumption that asphyxia damages the inhibitory neurones more severely than the excitatory ones.

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Effect of Heptyl Aldehyde on a Spindle-Cell Sarcoma.

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Strong[1] recently reported an inhibitory effect of heptyl aldehyde on spontaneous mammary tumors in mice and later[2] in dogs. He reported an inhibitory effect on the growth-rate of the mouse mammary tumors with complete regressions, gross and histological alterations, especially liquefaction of the tumors and high percentages of regressions in dog mammary tumors. In the mice he administered the heptyl aldehyde in the stock diet but directly injected small amounts of the undiluted aldehyde into the dog tumors. An attempt was made to extend Strong's results using a transplantable sarcoma in the rat.

The tumor used was a spontaneous sarcoma found in the liver of a female rat. It was highly malignant, of the spindle-cell type and retained its original vigor through the tenth passage in our particular strain of rats.[3] Tumor passage was afforded either by subcutaneous injection through a trochar of a single piece or a macerate or intraperitoneally by injection of a fine macerate in Tyrode's

[1] Strong, L. C., *Science*, 1938, **87**, 144; *Am. J. Cancer*, 1938, **32**, 227.

[2] Strong, L. C., and Whitney, L. F., *Science*, 1938, **88**, 111.

[3] MacKay, L. L., and MacKay, E. M., *Am. J. Physiol.*, 1927, **83**, 179.

TABLE I.

Exp.	No. Rats	Sex	Treatment	Body wt in g Days after transplantation 0	3	9	18	Death	Tumor dimensions in mm on 9th day	Days survived	Tumor wt at death g	No. of tumors showing Necrosis	Liquefaction
1	3	♂	Controls	261						32			
	4	♂	Fed heptylaldehyde	265						27			
2	5	♂	Controls	72	95	128	147	150	33 x 14	25	30	3	1
	6	♂	Fed heptylaldehyde	83	108	136	142	140	29 x 16	25	18	5	3
3	6	♀	Controls	72	92	122	149	153	26 x 13	30	48	4	2
	6	♀	Fed heptylaldehyde	82	108	125	146	146	25 x 15	25	24	6	3

solution through a large needle. Tumors which developed at a subcutaneous site were localized large lumps, soft to palpation and at death frequently exhibited central necrosis and consequent liquefaction. The intraperitoneal growth was very diffuse showing multiple metastases over the entire peritoneum.

Heptyl aldehyde (Eastman) is a fairly toxic substance. One cc by stomach tube was fatal to rats of 200 g weight in 4 hours, prostration occurring within 15 minutes. There was acute hemorrhagic inflammation of the entire gastro-intestinal tract. The pungent odor of the aldehyde could be detected even in the muscles of the extremities. Strong did not indicate the doses which he fed, but the doses which were given here were as large as can be given without appreciably altering the food intake. Typical experiments are summarized in Table I. In Experiment 1 a saturated aqueous solution of heptyl aldehyde (about 0.1%) was administered by stomach tube in a dose of 1 cc per dcm^2 of body surface twice daily. In Experiments 2 and 3 the aldehyde was fed in the food in a concentration of 1%. The intake of the stock diet[3] was about 10 g per rat per day. These rats were 2 months old and all transplants were made subcutaneously between the shoulders.

It is obvious from the data presented that the heptyl-aldehyde-fed animals showed no greater tumor regression or liquefaction or survival time than the controls; although, the tumors of the treated animals weighed definitely less than those of the controls. Other experiments in which the aldehyde was administered in the drinking water in larger quantities confirmed this conclusion. The direct injection of small amounts up to toxic doses of the aldehyde directly into growing tumors was also without any influence.

Summary. Heptyl aldehyde was administered to albino rats by stomach tube, mixing with the diet, in the drinking water and injected directly into tumors. No effect was apparent on a malignant, transplantable spindle cell sarcoma with respect to resistance to growth of the tumor, survival time of the rat and regression or liquefaction of the tumor. The tumors of the rats receiving heptyl aldehyde weighed less at death in spite of the similar survival times.