In concluding it seems safe to assert that under the experimental conditions employed in our work, exposure to X-ray failed to destroy or markedly attenuate the virus *in vitro*. The observations on monkeys suffering from the experimental infection and treated either during the incubation period or with manifest paralytic symptoms furnish no evidence suggesting any benefit from the Roentgentherapy as used. It is difficult to properly evaluate these findings in their bearing upon the usefulness of Roentgentherapy during the course of the human disease. It should be remembered that the infection in the monkey is much more severe and recovery is exceedingly rare after complete paralysis has developed. In the human, on the other hand, paralysis shows a tendency for spontaneous regression in the majority of the cases. The argument therefore is ambiguous, as it may be held in favor as well as adverse to any possible value of X-ray in the treatment of human poliomyelitis.

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Experimental Enhancement of Malignancy in the Brown-Pearce Rabbit Tumor.

ALBERT E. CASEY.

From the Laboratories of The Rockefeller Institute for Medical Research.

The Brown-Pearce rabbit tumor is a transplantable malignant epithelioma carried in this laboratory for more than 100 generations by intratesticular inoculation. It has been used extensively for the study of animal constitution and it has been found possible to alter the susceptibility or resistance of animals to this tumor by various surgical and environmental procedures. About a year and a half ago attempts were made to alter the resistance or susceptibility of animals to inoculation with this tumor by the use of material derived from the tumor itself. The essential feature concerned the preparation of the material for use in conjunction with a regular tumor inoculation.

The first attempt resulted in a marked enhancement.[1] A rabbit which had died 5 to 10 hours previously of the Brown-Pearce tumor was placed for 2 weeks in the ice-box (26-32°F.) At the termination of this period, a normal saline emulsion of the primary tumor

[1] With reference to enhancing extracts from various tissues and from other tumors see: Chambers, H., and Scott, G. M., *Brit. J. Exp. Path.*, 1924, **5**, 1.

(testicle) was made and 0.3 cc. inoculated into the right testicles of each of a group of normal young adult rabbits. Two weeks later 0.3 cc. of a normal saline emulsion of fresh Brown-Pearce tumor was inoculated into the left testicles of each of the same group of rabbits and also into each of a control group not previously inoculated.

This first experiment was repeated 7 times, and the only change in the experimental procedure was to remove the tumor from the rabbit, imbed it in paraffin, and preserve the imbedded tumor in the ice-box before using. All experiments were terminated at the end of a 2 months' period after the last inoculation and the results in every experiment confirmed the original observations that a significant enhancement of malignancy had occurred. Of the 43 animals inoculated 100% grew primary tumors as against 68% among the 119 animals in the control series; the size of the primary tumors at autopsy was 22 cc. as against 10 cc. in the controls; the mean longevity was 44 days against 56 days for the controls; the mean mortality based upon the number of deaths, probable deaths, and recoveries was 95% as against 57% in the controls; the mean number of metastatic foci was 18 as against 8 in the controls; the incidence of metastases was 100% as against 65% in the controls; and the total tumor growth per animal, including both primary and metastatic, was 146 cc. as against 56 cc. in the controls.

This enhancement of malignancy has been and is being investigated in a large number of experiments, most of which are still in progress. The procedure has been to change each variable in the original equation quantitatively and qualitatively in new experiments. Concerning the source of material suitable for preservation, it has been found possible to use fresh, semi-necrotic, or necrotic tumor; to obtain tumor from a recently inoculated, moribund, or dead animal; to use the primary growth or omental or retroperitoneal metastases. The inoculation of fresh tumor, or fresh or preserved normal testicle 2 weeks before tumor inoculation has not resulted in enhanced tumor growth.

Concerning methods suitable for preservation, it has been found possible to keep the rabbit for 2 months in the ice-box (26-32°F.) instead of the original 2 weeks; to preserve for 10 days only, but this often resulted in a local growth after inoculation of the opposite testicle. The preserved material can be inoculated into either testicle, into the skin, subcutaneous tissue, or muscle. Enhancement followed inoculation of preserved material both at the same time and 2 weeks later than the fresh tumor. A single series of animals

was inoculated at 60-day intervals with preserved material alone, and after 5 months all came down with primary tumors at the site of the last injection. This was followed by widespread tumor metastases, and death in all of the rabbits. Inasmuch as the preserved material which was used for the last injection had been refrigerated for 10 days instead of the usual 2 weeks, the possible presence of living cells capable of growth could not be ignored.

A definite enhancement, though somewhat lessened, has followed filtration of the preserved tumor material through "V" Berkefeld filters. The use of desiccated preserved material also results in a definite enhancement.

Animals of various age, sex, and breeds that have been tested so far have been suitable for inoculation with preserved material. A series of thoroughly tested and retested immune animals were inoculated with preserved material followed in 2 weeks by tumor inoculation. Thirty-three per cent of these immune rabbits grew malignant tumors; the others remained negative. Metastatic growth does not ordinarily occur from intracutaneous inoculation, but widespread metastases and death have resulted from the use of preserved material before skin inoculation.

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Some Vital Staining Reactions Bearing upon the Homology of Spermatocyte Dictyosomes.*

H. HERBERT JOHNSON. (Introduced by A. J. Goldforb.)

From the Department of Biology, College of the City of New York.

In male germ cells the well-known dictyosomes and their derivatives, the acroblasts, are vigorously blackened by silver or osmium impregnation methods. Therefore they have been termed "Golgi bodies" and are accepted as complete homologues of the Golgi-apparatus of mammalian nerve and gland cells. The Golgi-apparatus is believed to be concerned with the function of secretion. An example frequently cited is that the acrosome of the animal sperm is secreted by the dictyosome complex, involving the tacit assumption that this complex is the homologue of the Golgi-apparatus. Recently this

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