

toxin was found to be destroyed by the action of "C" carbons in 2 minutes, at a distance of 25 cm. When 3% glycerine, having the same pH (7.8) as the purified toxin, was added it was found that detoxification was brought about in 4 minutes.

To test the antigenic power of Gross' toxin and of the detoxified glycerinated and unglycerinated preparations of this toxin, 6 guinea pigs were given 10 injections at intervals of 5 days with each of these 3 products. Twelve days after the last injection half of each group of animals was given intracutaneous injections of 1/40 and 1/50 M.L.D. of ordinary diphtheria toxin. All showed positive reactions, and when these animals were given 1 M.L.D. of toxin subcutaneously, 2 days later, all died. The remaining animals were tested likewise 30 days after the last injection and were also found to be non-immune.

Diphtheria toxin prepared by the method of Gross is easily destroyed by ultraviolet light. Since, however, this purified toxin itself is *not antigenic*, a radiated non-toxic preparation could not be expected to be antigenic. It is apparent that in the preparation of this toxin the antigenic fraction is lost while the toxin remains. Evaluation of this point will necessitate further work, which, we understand, is to be carried out by the same group which first prepared the toxin.

Since investigation of ricin (to be published at an early date) has indicated that it is possible to detoxify this product with ultraviolet light and still retain its antigenicity, the results noted above do not obviate the same possibility with diphtheria toxin and other toxins under the proper conditions.

#### 4874

### Histology of the Anterior Pituitary of the Foetal Pig with Reference to Growth and Maturity.

W. O. NELSON. (Introduced by Eric Ponder.)

*From Washington Square College, New York University.*

It is well known that the pars anterior of the hypophysis cerebri is made up of a variety of cell types, *viz.*, eosinophils, basophils, and chromophobes (Flesch,<sup>1</sup> Kraus<sup>2</sup>). The presence of at least 2 func-

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<sup>1</sup> Flesch, M., *Tagebl. d. 57 Vers deutsch Naturf. u. Arzte. Magdeburg*, 1884, 195.

<sup>2</sup> Kraus, E. J., *Zeigler's Beiträge*, 1914, lviii, 159.

tions attributable to the pars anterior is of interest in view of these cell types, and it is logical to suppose that a relation may exist between the different types and functions.

Dortzbach and Smith<sup>3</sup> recently have studied the effect of anterior lobes, obtained from foetal pigs, when introduced intra-muscularly into the immature mouse. They employed a graded series and found that the 10 cm. stage was the earliest at which the growth hormone was present in sufficient quantity to evoke a positive response to their test. Anterior lobe material from 20 cm. pigs produced a positive response to the maturity reaction. These results indicate the existence of a time difference in the attainment of the threshold values necessary to cause a response to the biological tests employed by these authors.

It seemed advisable to make a histological study of a graded series of foetal pig pituitaries in order to determine whether any relation exists between the physiological phenomena described by Dortzbach and Smith and the order of appearance of the cell types characteristic of the pars anterior. A graded series was obtained and the 10 and 20 cm. sizes were selected as critical stages. The entire pituitary in each instance was carefully dissected out and fixed in Zenker's fluid. All material was sectioned 5 micra in thickness and stained with eosin and Delafield's haematoxylin.

The histological picture characteristic of the 10 cm. stage was decidedly a basophilic one. A few scattered eosinophils were present but their scarcity seemed to indicate that the dominant element, at least in a morphological sense, is the basophilic cell.

The 20 cm. stage disclosed a distinctly different picture. Many eosinophilic elements were in evidence, some clumped together to form the so-called "nests". Basophilic cells were present in considerable number, though less numerous than the eosinophils.

The evidence so far obtained points toward the existence of a distinct histological difference, which may be related with the physiological one found by Dortzbach and Smith, in the pars anterior of the foetal pig at 10 and at 20 cm. The preponderance of basophilic elements in the earlier stage is altered to an eosinophilous dominance in the older foetuses. Further work in obtaining a series from an early age up to birth is in progress.

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<sup>3</sup> Dortzbach, C., and Smith, P. E., *Anat. Rec.*, 1929, xliii.