intervals to create in the blood tetanus antitoxin which remains without further injections for at least 3 years. It is interesting to note that 1 child of 5 years was not immunized after 2 series of injections, but who, nevertheless, had become immune to diphtheria as judged by the Schick test, from 3 injections of diphtheria toxin antitoxin. The Department of Health has had similar experience with horses whose ability to make different kinds of antitoxin may vary.

6875

Histopathology of Central Nervous System of Mice Inoculated with Poliomyelitis Virus.

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Harmon, Shaughnessy and Gordon[1] reviewed the contradictory results of former authors in inoculating rodents with the virus of poliomyelitis. They reported that after intraperitoneal or intracranial injection of the virus into mice the majority of them died sporadic deaths. The autopsy revealed gross lesions of lung consolidation, "but no microscopic sections were prepared from the tissues of mice".

The brain and spinal cords of 12 mice which had been injected with poliomyelitis virus by Dr. Nungester[2] together with those of 7 controls were cut serially and longitudinally and stained with cresylviolet. Four of the inoculated mice did not show any inflammation of the central nervous system. In 3 others mild inflammatory reactions in isolated segments of the dorsal and lumbar spinal cord were found in the form of perivascular leucocytic infiltration of one or 2 rows of cells and of a mild meningitis at the posterior surface in one case. In 3 other mice the leucocytic infiltration had spread into the posterior and anterior gray and was combined with hemorrhage into the anterior horns, mild increase in glia nuclei and meningitis along the spinal nerve roots. In 2 mice which had been injected with virus after passage through 3 gener-

[1] Harmon, Paul H., Shaughnessy, Howard J., and Gordon, Francis B., *J. Prev. Med.*, 1930, **4**, 98.

[2] Nungester, W. J., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 1128.

ations of mice and which had developed weakness of the hind legs a poliomyelitis was found which resembled more closely the histopathology found in poliomyelitis of macacus, though the inflammation was localized to a few segments only. There was a marked perivascular infiltration of polymorphonuclear and small mononuclear round cells around the central vessels, spreading diffusely into the gray matter and accompanied by hemorrhage into the anterior horns (Figs. 1 and 2). Besides there was a mild glia proliferation

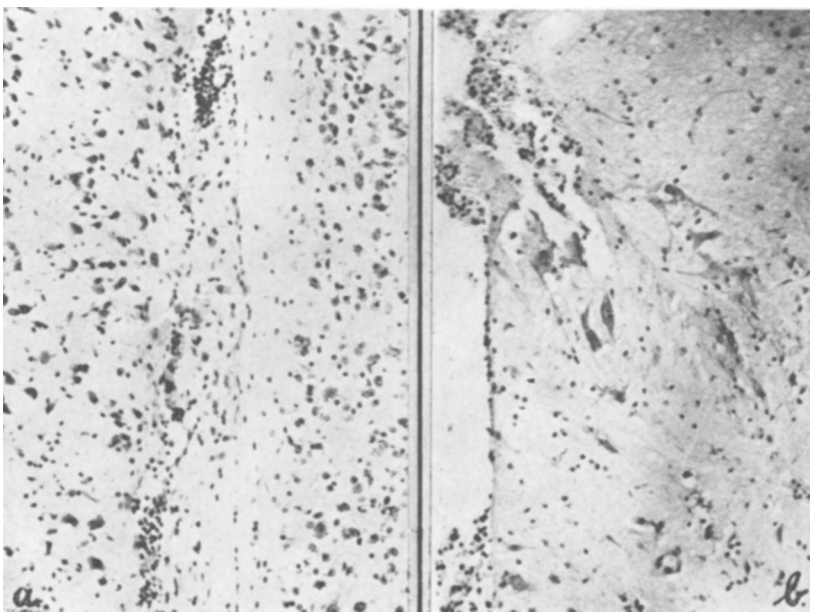

FIG. 1.

(a) Longitudinal section through spinal cord of mouse, Group III. Perivascular leucocytic infiltration around central vessel.

(b) Transverse section, second mouse of same group. Hemorrhage into anterior horn with diffuse leucocytic infiltration and ganglion cell degeneration. Original magnification 170 ×.

and the ganglion cells in these regions showed different degrees of degeneration, dust-like appearance or complete absence of Nissl bodies, pyknosis and beginning fragmentation of the nucleus with folding of its membrane. In some places beginning neuronophagia in the form of coffin-like arrangement of glia cells around a ganglion cell was present (Fig. 3). In one of 2 mice isolated diplococci were found within the leucocytic infiltration, measuring 1.2$\mu\mu$ in longitudinal diameter and surrounded by a pale halo.

In none of these 12 mice an encephalitis was present. In the

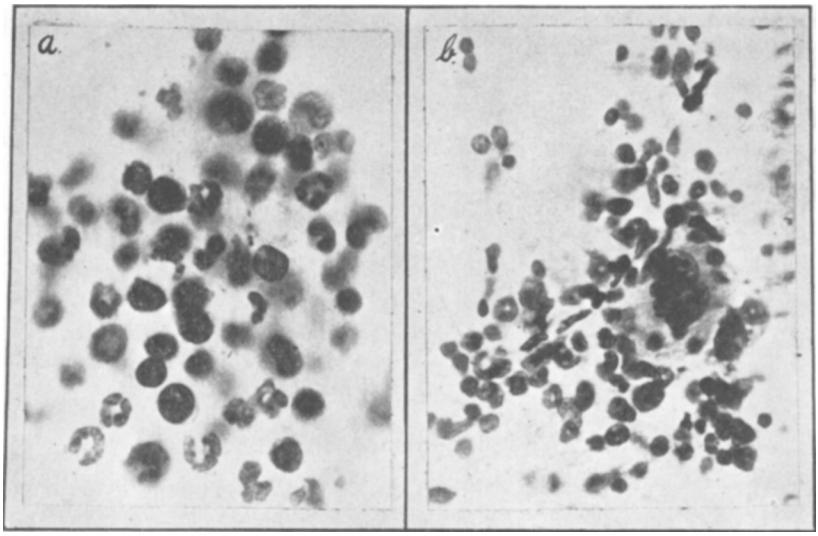

FIG. 2.

(a) Same case as Fig. 1 a. Infiltration of gray matter of spinal cord with polymorphonuclear leucocytes and mononuclear cells. Isolated diplococci surrounded by a pale halo are seen in the center of the field. Original magnification 1600 ×.

(b) Perivascular leucocytic infiltration in posterior horn with proliferation of glia nuclei. Original magnification 800 ×.

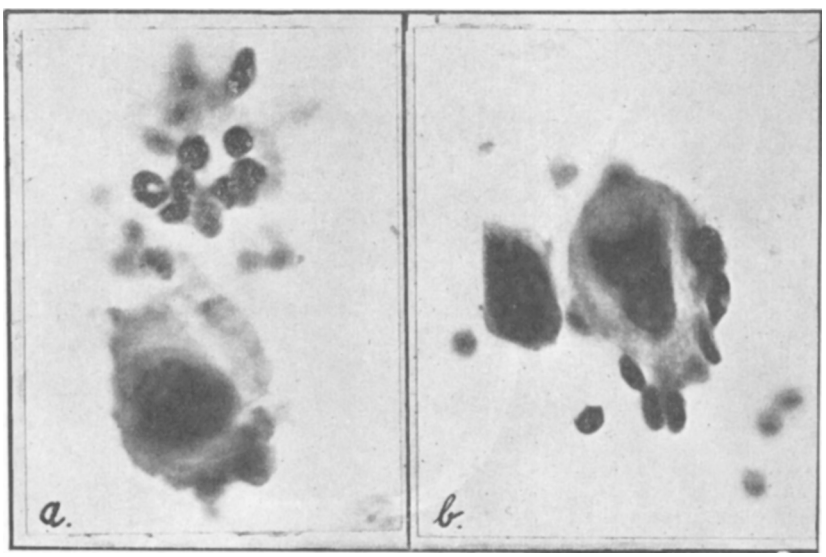

FIG. 3. Same case as Fig. 1 b.

(a) Anterior horn cell with beginning degeneration of cytoplasm and nucleus next to a focus of leucocytes infiltrating the anterior horn.

(b) Anterior horn cell with pale staining cytoplasm and pyknotic nucleus surrounded by an increased number of glia satellites (microglia?). Original magnification 1200 ×.

spinal cords of the controls isolated granulomas or foci of glia proliferation were detected; in 2 of them small isolated foci of leucocytes were seen along the spinal nerve roots. But in none of them a myelitis was found which could be compared with that described in the last 5 mice, which had been inoculated with the poliomyelitis virus.

6876

Effect of Injecting Pregnancy-Urine Extracts in Hypophysectomized Rats. I. The Male.*

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The injection of pregnancy urine (P.U.) in normal young rats causes an increase of the interstitial cells of the testes, an enlargement of the accessories and occasional injury to the tubules (Engle[1]). Collip *et al.*[2] reported that injections of placental extracts (which he considers physiologically similar to P.U.) in hypophysectomized male rats caused a hypertrophy of the interstitial tissue of the testes, prevented atrophy of the accessories, but *did not* prevent a loss in weight of the testes or degeneration of the tubules. Freud[3] reported that P.U. increased the size of the testes in hypophysectomized rats but gave no structural details.

We have injected several series of hypophysectomized male rats with Antuitrin S (P.U. extract) starting either immediately after hypophysectomy or after a 20-75 day post-operative period. For controls, either one testis was removed before injections were started or littermates were autopsied at that time. Untreated operated littermates were also autopsied at the end of the treatment period.

As evidence for the completeness of the pituitary ablation, we have: (a) daily weighings, (b) skeletal measurements taken at the

* Aided by a grant from the Committee for Research in Problems of Sex, the National Research Council.

† National Research Fellow, Biological Sciences.

[1] Engle, E. T., *Anat. Rec.*, 1929, **43**, 187.

[2] Collip, J. B., and Selye, H., *Nature*, 1933, **131**, 56.

[3] Freud, J., *Deutsch. Med. Wochn.*, 1932, **58**, 974.