been shown by Kwassow and Naumenko.[3] The work of Jasper and Monnier[4] on the transmission of excitation between excised non-myelinated nerves may also be recalled here, and it is interesting to note that the transmission in this case is likewise attended by a long delay. For excitability changes in nerve fibers produced by impulses in adjacent nerve fibers see Otani[5] and Katz and Schmitt.[6] It is significant that in all cases so far known in which actual cross-excitation between nerve fibers takes place, the nerve fibers have a tendency to enter into rhythmical activity. This is true of the preparations used by Kwassow and Naumenko and by Jasper and Monnier; and it is also the case with our veratrinized mammalian nerve. An adequate discussion of the subject, however, can only be attempted later in the detailed report.

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Effect of Foster-Nursing upon Inborn Resistance of Mice to St. Louis Encephalitis.

F. HOWELL WRIGHT. (Introduced by Leslie T. Webster.)

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Previous studies from this laboratory have demonstrated that certain factors which regulate the resistance of mice to infectious disease are inherited.[1] Bittner's recent work, however, on the influence of mothers' milk on the susceptibility of mice to cancer indicates that the same sort of foster-feeding test should be applied to the problem of susceptibility to infection.[2]

Litters inherently susceptible to St. Louis encephalitis were placed with mothers of resistant litters and vice versa within 24 hours of birth. As controls, susceptible litters were likewise interchanged among susceptible mothers and resistant litters among resistant mothers respectively. Foster-nursing was continued 3 weeks and then each mouse of each litter was inoculated intranasally with 0.03 cc of a 1:10 or 1:100 suspension of mouse-brain St. Louis encepha-

3 Kwassow, D. G., and Naumenko, A. I., *Pflugers' Arch.*, 1936, **237**, 576.

4 Jasper, H. H., and Monnier, A. M., *J. cell.-comp. Physiol.*, 1938, **11**, 259.

5 Otani, T., *Japanese J. Med. Sciences: Biophysics*, 1937, **4**, 355.

6 Katz, B., and Schmitt, O. H., *J. Physiol.*, 1940, **97**, 471.

1 Webster, L. T., *J. Exp. Med.*, 1937, **65**, 261.

2 Bittner, J. J., *Am. J. Cancer*, 1940, **39**, 104.

litis virus. Further controls from litters nursed by their own mothers were likewise inoculated.

The results of the tests are shown in Fig. 1. Of 104 susceptible young mice nursed by their own mothers, 90% succumbed between the 5th and 7th days and 96.2% by the end of the 3-week period of observation (Fig. 1-A). Foster-nursing of 65 susceptibles

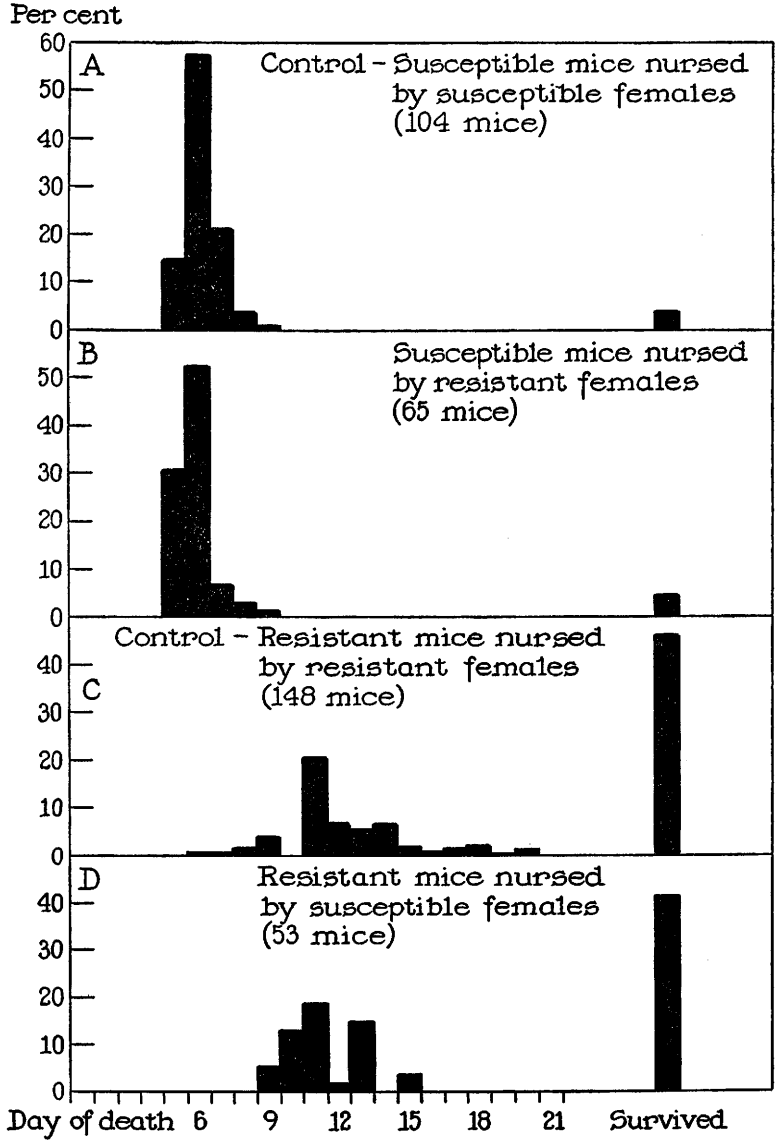

FIG. 1.

Period of survival of control and foster-nursed mice of the virus-resistant and virus-susceptible strains.

by resistant foster mothers gave almost identical results (Fig. 1-B). Of 148 resistant young mice nursed by their own mothers, approximately 54% succumbed (Fig. 1-C), a figure which is higher than that previously reported and due, in all probability, to the discontinuance of selective breeding for 3 years. In contrast to the susceptible mice, the resistants rarely died before the 9th day, at which time nearly all the susceptibles were dead, and most frequently on or about the 11th day. Foster-nursing of 53 resistant young by susceptible mothers again produced no change in the amount or distribution of deaths (Fig. 1-D).

Summary. In strains of mice selectively bred for resistance or susceptibility to St. Louis encephalitis virus, foster-nursing exerted no effect upon the course of disease or mortality-rate following nasal instillation of virus.

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Secretion of Inulin by the Kidney of the Crayfish.*

N. S. RUSTUM MALUF. (Introduced by E. C. Faust.)

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Cumulative evidence indicates that inulin is not secreted by nor passively reabsorbed through the vertebrate nephric tubule (Smith[1]). In vertebrates, the inulin-clearance, therefore, is independent of the concentration of inulin in the plasma and is used as a measure of the rate of glomerular filtration.

In an attempt to find whether filtration occurs through the nephron of the crayfish by the use of inulin, the writer obtained most unexpected results as regards the inulin-clearance. This is the first invertebrate kidney which has been studied from the standpoint of "clearances". Inulin was measured by a micro-adaptation of the Shaffer-Hartmann-Somogyi method.

Nowhere in the crayfish nephron[2] is there a tenuous syncytium such as constitutes the glomerular capsule of the vertebrate nephron.

* This work was performed largely during the tenure of a Johnston Research Scholarship at The Johns Hopkins University. The measurements of inulin-clearance were completed in the Department of Tropical Medicine, Tulane University.

1 Smith, H. W., *The Physiology of the Kidney,* New York, Oxford University Press, 1937.

2 Maluf, N. S. R., *Zool. Jb., Abt. f. allg. Zool. u. Physiol. d. Tiere,* 1939, **59**, 515.