The Loci of Contact Chemoreceptors Involved in Feeding Reactions of Certain Lepidoptera

Hubert Frings and Mable Frings
Pennsylvania State University

Four species of butterflies, *Cercyonis pegala, Lethe eurydice, Speyeria cybele,* and *Limenitis arthemis* and two species of moths, *Ctenucha virginica* and *Scepsis fulvicollis* were tested to discover the location of contact chemoreceptors mediating feeding responses. The animals were mounted alive by fastening the wings in paraffin on the ends of glass rods and sugar solutions brought to suspected loci of contact chemoreceptors on brushes or glass microneedles. Parts thus found to possess the receptors were removed and the animals retested. The receptors are present on the tarsi and proboscis in all species. In *Scepsis, Ctenucha,* and *Cercyonis* the receptors on the proboscis are near the tip and are large and of a peculiar structure. Removal of all the legs in *Scepsis* renders the animals receptive to contact chemical stimulation by the antennae, whereas they are not so with legs. These moths represent exceptions to the usual situation in having tarsal receptors. This is probably related to their day-flying habits and feeding on nectar.

Vascular Supply of the Brain in Cretinoid Rats*

Max Hamburgh
University of Pennsylvania

The nature, symptoms and course of pathologic changes observed in certain human neurological diseases suggest a developmental study of the nervous system as a possible approach which may contribute to an understanding of the etiology of some of these diseases. The experiments to be reported here are concerned with a study of the development of the vascular supply of the cerebral cortex of normal and cretinoid rats, and an investigation of the efficiency of the blood brain barrier in normal and cretinoid rats.

Male and female rats of the Wistar Strain were used. Thyroidectomy was performed at birth by injection of 200 microcuries of I^{131}.

For the demonstration of vascular development of the cerebral cortex, animals were sacrificed at 5 day intervals from 1-35 days of age postnatally. Their hemispheres were removed and fixed in chilled absolute alcohol. Gomori's method for the demonstration of alkaline phosphatase in endothel-

* This work was done under a fellowship grant of the Dazian Foundation for Medical Research.

ial tissues was utilized. (Gomori '39) (Scharrer '50).

For the demonstration of the appearance of the blood brain barrier, animals were injected at the same intervals with the dye trypan blue at a ratio of 1 cc of 1% trypan blue/50 grams of body weight. The presence or absence of this dye in the tissue of the brain was selected as an indicator of the efficiency of the blood brain barrier. Six hours following injection the animals were perfused with .09% saline to wash out the blood. 1000 mg. of brain tissue were then homogenized in 2 cc of 70% Trichloroacetic acid. Following centrifugation at 300 g for 20 minutes, the supernatant was placed in a Coleman spectrophotometer tube and readings were made at 660 mu.

1) Our preliminary observations indicate that the number of capillaries per unit area of cerebral cortex is reduced in the cretinoid brain.

2) Under the conditions of our experiments no quantitative difference between the penetration of the trypan blue dye into brain tissue in normal and cretinoid animals could be detected.

At the present time consultations with various investigators are planned to devise more critical and refined experiments to test the validity of the preliminary findings reported here.

Effects of Donor Kidney Homogenates on the Survival of Kidney Tissue Homotransplants

Benjamin B. Kamrin
State University of New York

Previously, the continuous state of successful parabiosis was found to be the environment which permitted the survival of reciprocally exchanged kidney tissue homografts. The present experiment was devised to test the use of donor kidney homogenates as an antigen neutralizing mechanism to facilitate the survival of donor homografts in separated parabionts. Fourteen successfully parabiosed pairs of albino rats were surgically separated after about 30 days in parabiosis and the pairs divided into three groups. Donors from non-littermate stock and of varying ages were placed with each pair. Each donor supplied its left kidney for the homogenate and the right kidney as the source of two homografts.

The right partner of parabiont pairs (5 animals) of Group I received 5 homogenate injections intraperitoneally of 0.5 cc. on alternate days, and on the last day of injection was homografted by donor kidney tissue to the prepared kidney sites of both the right and left animals. Group II (4) received 7 homogenate injections. Group III (5) received similiar treatment except that 10 homogenate injections were given. The left copartners served as controls. Both animals, of each pair, were sacrificed one month after homotransplantation. Histological examination of the tissues demonstrated that homogenate injections did not permit the survival of the homografts, but minimized the local reaction of the host to the graft.