a stab wound of the brain, an extensive area of brain surrounding the wound is negative to the periodic acid – Schiff test. This condition lasts for three days. After three days, the negative area around the wound begins to diminish in extent. This continues until ten days after the operation, by which time it has disappeared. After such brain wounds, the ground substance disappears, begins to be re-elaborated starting at the third day, and gradually increases in amount until its regeneration is about complete by the tenth day. Thus after brain wounds, the breakdown and reconstitution of the blood – brain barrier, as tested by intraperitoneal trypan blue staining, conforms to the same schedule as the dissolution and re-elaboration of the ground substance.

The site of the blood – brain barrier has been said to reside in the cerebral capillaries, in the capillary endothelium, or in the pia-glial membrane. From the results of the present experiments, it seems that the ground substance of the central nervous system contributes to the blood – brain barrier and is a substance which prevents the staining of the adult normal brain by intravenous or intraperitoneal trypan blue.

These experiments will be reported in detail shortly. This investigation was supported in part by research grant *B*-341 from the Institute of Neurological Diseases and Blindness of the National Institutes of Health, U.S. Public Health Service.

Arthur Hess

Department of Anatomy,
Washington University School of Medicine,
St. Louis, Mo.
Oct. 26.

[1] Hess, A., *J. Comp. Neurol.*, **98**, 69 (1953).
[2] Goldmann, E. E., "Vitalfärbung am Zentralnervensystem" (Georg Reimer, Berlin, 1913).
[3] King, L. S., *Arch. Neurol. and Psychiat.*, **41**, 51 (1939).
[4] Stern, L., and Peyrot, R., *C.R. Soc. de Biol.*, **96**, 1124 (1927).
[5] Behnsen, G., *Z. Zellforsch. u. mikr. Anat.*, **4**, 515 (1927).
[6] Broman, T., *Acta Psychiat. Neurol.*, **16**, 1 (1941).
[7] Hess, A., *J. Comp. Neurol.* (in the press).
[8] Macklin, C. G., and Macklin, M. T., *Arch. Neurol. and Psychiat.*, **3**, 353 (1920).

Effect of Methylcholanthrene on Ovaries of Mice

Although a great deal of work has been done on the carcinogenic action of methylcholanthrene, its effects on specific organs and tissue systems have not been completely investigated. Among the methods employed are: skin-painting, subcutaneous injection, intra-peritoneal administration as well as injection into the amniotic fluid of mice. The findings reported here are based on observations by another method which has been employed as part of an investigation for determining the strain specificity of certain endocrine organs of mice of the C_{57} (black), the Strong *A* and the C_3H (Bar) strains of mice. The results which were obtained are striking enough to deserve wider notice even at this stage.

Female mice of the three strains about two months of age were operated upon under anæsthesia and the ovaries exposed. Each ovary was gently lifted up with a pair of forceps and painted with a 0·25 per cent benzene solution of methylcholanthrene with a single stroke of a camel hair brush. The ovaries were then dropped back in place and the abdominal wound sutured up. When the sutures healed, the animals were kept for mating with their respective litter-mate males.

It has been observed that an over-all hæmorrhagic effect is seen in the young of all the strains and in particular the C_3H (Bar) strain. Localized hæmorrhagic areas are seen in all and particularly in the C_{57} strain. These areas are almost always on the upper lip, the back between the scapulæ, the shoulders, and the legs especially the digits. Blood clots have been observed in the C_{57} (black) and the Strong *A* strains. These are at the tip of the nose, the chin, on the digits and in some cases at the second joint of the limbs. One or several may be present in a single animal. In the Strong *A* strain, one young with a club foot was observed. This animal lived to be eleven days old, at which time the mother destroyed it. Histological sections have shown that the hæmorrhage is not in any particular region but diffused throughout the connective tissue and muscles. Table 1 gives a summary of the reactions seen in the different strains.

From the observations available so far, it seems as though the ova of each strain respond differently to methylcholanthrene. The effect on the C_{57} (black) seems to be most drastic, while in the Strong *A* it is least lethal. On the C_3H Bar it appears to be intermediate in action. It would seem as though the effect on the ova persists, for the reaction is obvious not only in the first litter but also in subsequent litters as well.

When the investigations in progress are completed, full details will be published.

This communication is published by permission of of Dr. V. R. Khanolkar, director, Indian Cancer Research Centre, under whose guidance the work is being done.

B. K. Batra

Indian Cancer Research Centre,
Bombay.
Nov. 2.

Table 1

Strain of mice	No. of breeders	No. of litters	No. of young	Total No. of young alive	Total No. of young dead	Still-born young	Young with generalized hæmorrhage	Young with localized hæmorrhage	Young with blood clots
A (Strong)	4	11	62	40*	12	—	4	2	6
C_3H (Bar)	3	3	19	4	15	—	11	4	—
C_{57} (black)	4	8	40	3	37	5†	2	24	6

* One of these had a club foot.
† All five belonged to the same litter. The mother developed a uterine tumour

Morphine Antagonists

In an earlier communication[1], we described the antagonistic action of tetrahydroaminacrin and 2-4 diamino 5 phenyl thiazole towards the depressant effects of morphine. It was shown there that these antagonists did not affect the analgesic properties of morphine on rats.

© 1955 Nature Publishing Group