

the myelin sheaths of the peripheral nerves, and vacuolation and liquefaction necrosis of the ganglion cells of the mesencephalon, metencephalon and anterior horns of the spinal cord. Hæmorrhages with changes in the ganglion and gliacells of the mesencephalon are also met with in the animals with convulsions.

The pathological changes in the nervous system in animals suffering from inanition are essentially the same as those in animals deprived of vitamin B₁ or of both vitamins B₁ and B₂. If anything, the changes in the peripheral nerves in animals subjected to inanition are more marked. In such animals the pathological changes are essentially the same whether the animals are totally starved or are given abundant vitamin while starving. The clinical manifestations in animals subjected to inanition, however, are not identical with those in animals suffering from vitamin B deficiency, possibly because of the rapid death of the starved animals.

G. W. T. H. FLEMING.

Blood Cholesterol and the Manic-Depressive Psychosis. (*Journ. Lab. and Clin. Med.*, vol. xxii, p. 240, Dec., 1936.) *Schube, P. G.*

The author investigated 71 cases of manic-depressive psychosis and 53 normals. He took the normal range to be between 110–195 mgrm., with a mean value of 148–17 and a median value of 150 mgrm. The range among the manic-depressives was from 50–428 mgrm. with a median value of 104.6. Only 23.8% had a blood-cholesterol value between normal levels.

In the separate groups, 84.8% of the 33 manic cases showed a cholesterol value below normal limits; the remaining 15.2% were within normal limits. In the depressive group; practically one-third were below normal, one-third normal and one-third above normal. The author thinks it is possible that some disturbance of the balance between the endocrine glands, the autonomic nervous system and the emotions is the factor at work.

G. W. T. H. FLEMING.

Cerebral Lesions in Hypoglycæmia. (*Arch. of Path.*, vol. xxiii, p. 190, Feb., 1937.) *Baker, A. B., and Lufkin, N. H.*

The writers studied the brains of three patients who died in a hypoglycæmic state. They found numerous new and old hæmorrhages scattered irregularly, which were most numerous in the patients who had had the most severe convulsions. The ganglion cell changes found were due entirely to post-mortem changes. They carried out experiments on six rabbits, but could find no evidence of cell alterations of pathological significance.

G. W. T. H. FLEMING.

Evidence of Selection in the Building up of Brain Lecithins and Cephalins. (*Journ. Biol. Chem.*, vol. cxviii, p. 131, Mar., 1937.) *McConnell, K. P., and Sinclair, R. G.*

By feeding young rats with elaidic acid both before and after birth, the elaidic acid content of the fatty acids in the lecithins and cephalins of the brain was found to be only about one-fourth of that of the liver and muscles. Thus there would appear to be a greater degree of selection in the building up of brain phospholipids than those of liver and muscle.

G. W. T. H. FLEMING.

The Carbohydrate Metabolism of Brain. I: The Determination of Glycogen in Nerve Tissue. (*Journ. Biol. Chem.*, vol. cxvi, p. 1, Nov., 1936.) *Kerr, S. E.*

The writer describes his modification of the Pflüger procedure for the estimation of glycogen. The method depends on (a) avoidance of post-mortem change during preparation, (b) rapid solution of the tissue by digestion with hot alcoholic potassium hydroxide, (c) separation of cerebrosides by means of hot methyl alcohol—chloroform mixture, and (d) correction for non-fermentable reducing substances liberated during acid hydrolysis. By this method the recovery of glycogen added to brain averaged 95.6%. Values of from 70–130 mgrm. per 100 grm. were found in mammalian brains frozen in situ with liquid air.

II: The Effect of Varying the Carbohydrate and Insulin Supply on the Glycogen, Free Sugar and Lactic Acid in Mammalian Brain. (Ibid., p. 9.) Kerr, S. E., and Ghantus, M.

The glycogen content of normal well-fed and fasting dogs lies between 77–150 mgrm. per 100 grm., and between 70–99 mgrm. in rabbits. Fasting, over-feeding, glucose infusion with or without insulin, phloridzin poisoning followed by adrenalin and pancreatectomy all failed to cause significant changes in the brain glycogen. Overdosage with insulin caused a marked decrease in the brain glycogen of dogs and rabbits. The free sugar of brain in the control animals varied from 35–75 mgrm. per 100 grm. in rabbits and from 45–86 mgrm. in dogs. Lowering of the blood sugar by phloridzin poisoning or by insulin caused a corresponding decrease in brain sugar. Hyperglycæmia caused by pancreatectomy or by administering glucose caused a rise of sugar in the brain. The free sugar of the brain was constantly lower than that of blood, except in extreme insulin hypoglycæmia. Neither lactic acid nor phosphocreatine of brain was affected by any of the experimental conditions.

G. W. T. H. FLEMING.

The Effect of Acetylcholine and other Constituents of the Adrenal Gland upon Blood Sugar and Amino-acids. (Amer. Journ. Physiol., vol. cxvii, pp. 542–52, 1936.) Davis, B. L., jun., and Luck, J. M.

Acetylcholine induces hyperglycæmia in rabbits if convulsions intervene. In the absence of convulsions it causes a moderate degree of hypoglycæmia. Acetylcholine hyperglycæmia is obtained after destruction of the adrenal medulla. It is, therefore, not due to a discharge of adrenaline. Acetylcholine causes hyper-amino-acidæmia both in normal rabbits and after destruction of the adrenal medulla. Cortin and ascorbic acid are without effect on either blood sugar or amino-acid nitrogen. The minimum hyperglycæmic dose of adrenaline is slightly less than the minimum dose required for the production of hypo-amino-acidæmia.

E. D. WALTER (Chem. Abstr.).

The Effect of Emotion on the Blood Cholesterol. (Z. Ges. Exptl. Med., vol. xxviii, pp. 428–31, 1936.) Dobreff, M., Peneff, L., and Wittkower, E.

Anxiety increases the cholesterol contents of serum. Samples taken during hypnosis are usually lower and those just before operation higher than controls.

MILTON LEVY (Chem. Abstr.).

Fat Metabolism in the Nerve Tissues of Pigeons Affected by B Avitaminosis. (Journ. Biochem. [Japan], vol. xxiv, pp. 153–205, 1936.) Takato, Y.

Polished rice contains 2.4 grm. total lipide and 0.03 grm. total cholesterol per kgm. No lecithin or cephalin could be demonstrated. The analytical methods employed could determine gravimetrically 9 mgrm. total fatty acid in 0.2 grm. brain-tissue and 1–2 mgrm. total cholesterol in 0.1 grm. tissue; furthermore, 0.05 mgrm. phosphatide phosphorus could be determined in 0.2 grm. and 0.04–0.08 mgrm. nitrogen in 0.5 grm. lipide material. In fasting pigeons there was a decrease in total fatty acid of the brain as compared with that of normally nourished birds. In pigeons on diets free from vitamin B₁ and B₂ there was also a decrease in total fatty acid content which was due to the fasting, but in the group lacking B₁ the decrease was greater than in ordinary inanition. No differences were observed in the different groups of pigeons so far as total cholesterol, phosphatide phosphorus or amino-nitrogen of the lipide material are concerned. The lipide of the spinal cord was not materially affected by fasting, but a decrease was found in the pigeons lacking B₁ + B₂ or only B₁ in their diets. In the peripheral nerves no marked difference was noted between the starved and normally fed groups of pigeons, but a decrease in total fatty acids was found in the pigeons on a diet lacking B₁ and B₂, and especially on the B₁-free diet. Vitamin B₂ stimulates the oxidation of fats and B₂ inhibits it in the nerve tissues.

S. MORGULIS (Chem. Abstr.).