

6. Pathology and Biochemistry.

The Cholesterol Content of the Cerebro-spinal Fluid. (*Arch. Psychiat.*, vol. cii, pp. 147-96, 1934; *Ber. ges. Physiol. exptl. Pharmakol.*, vol. lxxxiii, p. 380.)
Holthaus, B., and Wichmann, B.

The cholesterol content was determined by a modification of the Bloor, Allen and Pelkan method for blood-serum, with a Pulfrich photometer. The Hauptmann saponin-hæmolysis reaction, the sugar content, the Kafka albumin relation, the NaCl content and the gold sol reaction were determined on the cerebro-spinal fluid of 383 patients. Cholesterol was always present, normal values in 56 patients ranging between 0.3 to 0.6 mgrm. %. With progressive paralysis, 39 patients showed 0.36 to 0.92 mgrm. %; 13 patients with fever showed 0.4-1.03 mgrm. %. No changes were observed in 4 cases of tabes dorsalis, and no significant changes in 6 patients with meningitis. Slight increases were observed in 28 of 56 epileptics. Decreased cholesterol was observed also in hydrocephalus. Increases were observed also in arterio-sclerosis, encephalitis, schizophrenia, manic-depression, myelitis and migraine. An increase in cholesterol was observed when definite increase in lipoids occurred in the nervous system or when there were changes in the blood-cerebro-spinal fluid volume.

JAMES C. MUNCH (Chem. Abstr.).

Newer Researches Regarding the Bromine Picture in the Blood of Patients with Psychosis. (*Klin. Wochenschr.*, vol. xv, pp. 1832-3, 1936.) Meier, C. A., and Schlientz, W.

Br. determinations were made by the method of Liepert-Watzlawek. The blood is ashed with chromic acid in a closed system and the Br. titrated as bromate. The bloods of a large series of psychotic patients were found to contain 75-233 mgrm. with an average of 130 mgrm. % Br. No relation between the type of psychosis and Br. value was found. The higher values reported in the literature probably represent a previous Br. therapy. The table salt in Zurich contains half as much Br. as that in Vienna. This may explain the lower Br. values in patients who live in Zurich.

W. MENDELSON (Chem. Abstr.).

The Clinical Application of the Phosphatide-splitting Property of Serum from Normal and Psychotic Individuals. (*Klin. Wochenschr.*, vol. xvi, pp. 59-60, 1937.) Freund, E., Lustig, B., and Heimann, M.

Mixtures of serum and brain emulsion were incubated for 24 hours at 37°. With normal serum the inorganic P increased from 0.1 to 0.95 mgrm. % (av. 0.38). With serum from patients with general paresis, epilepsy, paranoia and schizophrenia, in 60-66% of the cases, the increase in inorganic P was greater than with normal serum. The average increase was 1.71 mgrm. %.

W. MENDELSON (Chem. Abstr.).

The Determination of Vitamin C Content in the Human Brain by Means of the Dental Test. (*Klin. Wochenschr.*, vol. xvi, pp. 93-6, 1937.) Kalnins, Viktors.

Scurvy was induced in guinea-pigs by feeding a vitamin C-free diet. After administration of various amounts of ascorbic acid for 16 days, histologic examination of the teeth was made. In this way standards of healing were obtained. The effect of feeding brain emulsion as compared with ascorbic acid serves as the basis for this test. In 1 grm. adult and infant brain there was 1.15 and 0.5 mgrm. ascorbic acid respectively.

W. MENDELSON (Chem. Abstr.).

The Phospholipides of the Brain, Kidneys and Heart of White Rats in Experimental Hypert thyroidism. (*Endocrinology*, vol. xxi, pp. 101-8, 1937.) Weil, Arthur.

When thyroid powder is fed to rats there is a decrease in body-weight and an increase in the weight of the kidneys and heart. There is a decrease in water, an increase of AcMe-sol. extracts in brain, kidneys and heart, an increase in alcoholic

extracts in kidneys and heart and a decrease in the brain. The total P and the P of the different extracts of the three organs are increased proportionately to the increase in phospholipides and weight of the organ. There is no qualitative change in the phospholipides. FELIX SAUNDERS (Chem. Abstr.).

Further Investigations on the Blood-brain Barrier. The Significance of the Electrical Charge and the S-potential in the Problem of the Blood-brain Barrier and Capillary Permeability in General. (Journ. Immunol., vol. xxxii, pp. 97-117. 1937.) Friedemann, Ulrich.

After intravenous injection of 1-7 mgrm. into guinea-pigs weighing 300 grm., all basic aniline dyes with the exception of safranin stain the brain. Some acid dyes (acid fuchsin, orange, bordeaux, eosin, uranin) do not stain the brain in the amounts used. Some others (trypan blue, Congo red, water blue, alizarin blue-S, indigo di- and tetrasulfonate) stain in amounts of 20 to 80 mgrm. The difference between the acid and basic dyes is partly due to a difference in their affinity for brain tissue, which was tested by determining the minimum staining dose *in vitro*. The cerebral capillaries are more permeable to basic than to acid dyes. This is determined by the ratio between the minimum staining concentrations *in vivo* and *in vitro*. The permeability of the cerebral capillaries to dyes is independent of their chemical constitution, size and lipoid solubility, but depends on their electrical charge. Staphylococcus toxin acts rapidly without any incubation period. It is unable to pass the blood-brain barrier. It carries a negative charge at the pH of the blood and the iso-electric point is near 6.2. A method was devised to compare the S-potentials of toxins, with which the capacity of toxins to pass the capillary system is correlated. A theory is advanced that the selective permeability of the capillary system in general and the blood-brain barrier in particular is due to an irreciprocal permeability. A. R. BEEBE (Chem. Abstr.).

An Investigation of the Absorption of Ultra-violet Light by Cerebro-spinal Fluid in Various Disease States. (Journ. Neur. and Psychopathol., vol. xvii, p. 213, Jan., 1937.) Skinner, E. F.

The writer continued his work on absorption spectra in the spinal fluid. In his first series of 50 cases he found that cases of tuberculous meningitis gave rise to a characteristic change in the curve, as also did general paralysis, but not to such a marked degree. During the course of a disease the curve tended to become steeper if progress was towards fatality. The curve of general paralysis shows a shift towards the region of the long waves. In cases of long standing the hump on the curve disappears and the curve becomes merely a steeply-sloping line, closely resembling the curve found in tuberculous meningitis. After malarial treatment the curve approximates to the normal. The shape of the curve does not depend on a pleocytosis. Removal of all the salts by dialysis eliminated the hump from the curve and diminished the amount of absorption. Selective absorption gives way to a general absorption beginning about 2350. Normal fluid absorbs the ultra-violet waves in a region between 2600 and 3150, so causing the "hump" on the curve. Removal of proteins obliterates the hump by increasing the absorption and moves the curve to the right. There appear grounds for thinking that the hump in the normal curve may be due to uric acid, and that the shift to the right in inflammatory conditions is possibly due to an increase in the constituents. The writer suggests that coma may be due to the action of uric acid on neurones. G. W. T. H. FLEMING.

Fatty Acids of Phrenosin and Kerasin. (Biochem. Journ., vol. xxx, p. 100, Jan., 1936.) Chibnall, A. C., Piper, S. H., and Williams, E. F.

These authors found that brain contains at least three phrenosins whose acid components are -OH-n-docosanic, -OH-n-tetracosanic, and -OH-n-hexacosanic acids. Phrenosinic (cerebronic) acid is a mixture of these acids. Brain also