contains at least three kerasins, whose acidic components are n-docosanic, n-tetrasocanic and n-hexacosanic acids.

Evidence that lignoceric acid is a mixture is summarized and the suggestion made that the name should be abandoned. G. W. T. H. FLEMING.

α-Glycerophosphoric Acid and Brain Metabolism. (*Biochem. Journ., vol. xxx, p.* 33, *Jan.*, 1936.) *Johnson, R. E.*

The writer investigated the metabolism of -glycerophosphoric acid in the brain of normal pigeons. He found that the rate of aërobic removal of sodium-glycerophosphate is unaffected by added sodium lactate, but is increased by added sodium pyrophosphate. Added sodium pyruvate has no effect on the aërobic or anaërobic removal of α-glycerophosphate with or without added pyrophosphate. So that the Embdin-Meyerhof scheme does not hold for the pigeon's brain. There is aërobic production of reducing substances from α-glycerophosphate. From solutions in which brain-tissue has respired with α-glycerophosphate the 2–4-dinitrophenylbishydrazone of methylglyoxal and the 2–4-dinitrophenylhydrazone of a compound of probably six carbon atoms is formed. The possibility is discussed that the brain may synthesize oxidatively a compound of six carbon atoms from the α-glycerophosphate. G. W. T. H. FLEMING.

Choline Ester Formation in, and Choline Esterase Activities of Tissues in vitro. (*Biochem. Journ., vol. xxx, p.* 1668, *Sept.*, 1936.) *Quastel, J. H., Tennenbaum, M., and Wheatley, A. H. M.*

The writers found that brain slices respiring in a medium containing eserine produced a substance which caused a powerful contraction of an eserinized leech muscle preparation. This substance was only formed in the presence of eserine, was unstable in dilute alkaline solution, and its action on the leech muscle was counteracted like that of acetylcholine by the presence of morphine. It is considered to be a choline ester, and its rate of formation is greatest in the first hour. Oxygen is necessary for maintenance of this rate at a high level. The presence of glucose greatly increases the rate in phosphate or bicarbonate media when potassium and calcium ions are absent. The addition of potassium and calcium ions decreases the rate in a bicarbonate glucose medium. It is suggested that there is a link between glucose metabolism and choline ester metabolism in tissue slices. The presence of sodium lactate, pyruvate, α-glycerophosphate or glutamate increases the rate of respiration, but their effects are not as great as those of glucose. The presence of sodium succinate does not increase the rate. The addition of sodium fluoride, of choline or of a large excess of acetate ions does not diminish the rate.

G. W. T. H. FLEMING.

Sodium Chloride Content of Cerebro-spinal Fluid in Tuberculous Meningitis. (*Brit. Med. Journ., vol. ii, p.* 111, 1937.) *Ingham, J.*

The writer used a modification of the Whitehorn method of estimating the chlorides. Any possible contamination by chlorides is thus eliminated. He found an average of 715·6 mgrm. in 6 normals, of 633 mgrm. in 10 cases of non-tuberculous, non-meningitic lesions of the nervous system, of 633 in 26 cases of non-tuberculous meningitis. In 84 cases of tuberculous meningitis the average was 510 mgrm., the highest was 550 mgrm. and the lowest 420. G. W. T. H. FLEMING.

Respiration of Brain. (*Biochem. Journ., vol. xxx, p.* 1577, *Sept.*, 1936.) *Dixon, T. F., and Meyer, A.*

The writers investigated the respiration of the striate body, globus pallidus, cerebellar cortex, the cornu ammonis, hypothalamus and medial parts of the thalamus in the presence of different substrates. In the minced tissue, certain areas showed little or no extra oxygen uptake in the presence of glucose or lactate,

whereas when slices of these regions were used, constant and much higher respiration rates were observed. Cerebellar cortex has greater metabolic activity than any other part of the brain. G. W. T. H. FLEMING.

Studies on Brain Metabolism. I. The Metabolism of Glutamic Acid in Brain. (*Biochem. Journ., vol. xxx, p.* 665, *April,* 1936.) *Weil-Matherbe, H.*

The only amino-acid oxidized by brain is *l*(+)glutamic acid, which is oxidized to α-ketoglutaric acid and ammonia, and further to water and carbon dioxide. The enzyme responsible for the oxidation of *l*(+)glutamic acid does not attack *d*(−) glutamic acid so long as it is bound in the cell or to some constituent of the cell, probably a lipoid. In solution, however, the specificity is changed and *d*(−) glutamic acid alone is oxidized. The ammonia derived from the de-amination of *l*(+)glutamic acid disappears in secondary reactions leading to and beyond glutamine. The reaction *l*(+)glutamic acid → α-ketoglutaric acid is reversible. The existence of an ammonia-binding mechanism is shown leading from glucose via pyruvic acid and α-ketoglutaric acid to *l*(+)glutamic acid, glutamine and further to an end-product. *In vivo* the glutamic acid de-aminase is rather concerned with the synthesis than with the breakdown of glutamic acid.

G. W. T. H. FLEMING.

A Study of Sugar-Tolerance Tests in Two Hundred Patients with Convulsions. (*Bull. Neur. Inst. New York, vol. vi, p.* 62, *Jan.,* 1937.) *Drewry, H. H.*

In 200 cases with convulsions, dextrose tolerance tests were done before a diagnosis had been reached and the results compared when the series was completed. 93 patients had sugar curves with a peak below 150 mgrm. per 100 c.c., and 27 with a peak below 120 mgrm.; 3 patients had blood-sugar levels below 50 mgrm., and all 3 were found to have an adenoma of the pancreas. 24 had levels at one time or another between 50 and 70 mgrm., and all without definite symptoms of hypoglycæmia at the time the blood was taken.

Encephalography caused a rise in the sugar curve, which tended to return to the initial level as time passed.

It is concluded that factors influencing the blood-sugar level are so numerous and so complex that interpretations of the blood-sugar levels or sugar-tolerance curves must be made with caution. T. E. BURROWS.