Part III.—Epitome of Current Literature.*

1. Anatomy and Physiology.

Factors Controlling Brain Potentials. (*Cold Springs Harbor Symposia Quant. Biol., vol. iv, pp.* 292–304, 1936; *Trans. Amer. Neur. Assoc., vol. lxii, pp.* 55–60, 1937.) *Gerard, R. W.*

Encephalograms were made upon frogs, cats and human beings. The evoked potentials, automaticity, slow waves, synchrony, distance action and neural, chemical and physical control of rhythms were studied. Carbon dioxide and anæsthetics increase the magnitude and rate of rhythm, then abolish it. KCl in isotonic solution locally applied abolishes activity; $CaCl_2$ restores it. Insulin hypoglycæmia increases fast rhythms; glucose counteracts the effect and resembles Ca^{++}.

JAMES C. MUNCH (Chem. Abstr.).

Electrical Activity of the Cat's Brain. (*Arch. Neur. and Psychiat., vol. xxxvi, p.* 675, *Oct.*, 1936.) *Gerard, R. W., Marshall, W. H., and Saul, L. J.*

The authors investigated the spontaneous electrical activity as well as that evoked by auditory, optic, somæsthetic, etc., stimuli of the cat's brain from the inferior colliculus forwards.

As impulses pass centrally there is considerable interaction between those in separate elements of one sensory system, or even between those of separate systems (optic or auditory). A rhythm of from 2–4 a second is commonly present throughout the optic structures, from the chiasm to the striate cortex. This is usually disrupted by visual stimuli but is sometimes enhanced; occasionally illumination of each eye produces one of these opposed effects. Other spontaneous rhythms associated with the heart-beat or respiration were highly localized; intense, though often irregular, activity was the rule in the main afferent and efferent systems, and in the grey masses of the brain-stem.

The writers conclude that individual neurones possess a potential rhythmicity and automaticity which lead to "beating", and that the cell groups are normally unified by a distance action in addition to conducted impulses.

G. W. T. H. FLEMING.

Action Potentials of the Brain. (*Arch. Neur. and Psychiat., vol. xxxvi, p.* 1214, *Dec.*, 1936.) *Davis, H., and Davis, P. A.*

The writers found that under standard conditions a given person reproduces on successive tests his own type of record, which may be characterized by, amongst other things, the presence or absence of a regular alpha rhythm, ranging from 8–13 waves per second.

They then investigated eight pairs of identical twins (18–58 years old). The records from one twin resembled those from the other as closely as the records of the same person on successive tests. In two instances both members of a pair of twins showed a feature which is unique in this series of over 140 records, i.e., a rate of 13 per second. In another case it was an unusual mixture of frequencies with a different rhythm dominating at the vertex from that found at the occiput.

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Another unusual feature was the relation between the vertex and the occiput in these same pairs. In both members of one pair the alpha rhythm was mixed at the occiput and subdominant at the vertex, while in the other pair it was dominant at the occiput and rare at the vertex. G. W. T. H. FLEMING.

Connections between the Striatum and the Substantia Nigra in a Human Brain (*Arch. Neur. and Psychiat., vol. xxxviii, p.* 550, *Sept.*, 1937.) *Rundles, R. W., and Papez, J. W.*

Microscopic examination of a brain by means of Pal-Weigert sections through the brain-stem revealed bilateral degeneration of the caudate nucleus and the putamen with preservation of the globus pallidus. The striatum, including the caudate nucleus and the putamen, has direct fibre connections with the globus pallidus and, what is equally important, also with the substantia nigra. The ansa lenticularis, fasciculus lenticularis and the pallidosubthalamic tract contain no fibres of striatal origin. Symptomatology referable in individual cases to either striatum or to the substantia nigra is explained on the basis of an interruption of the strio-nigric relationship. Cortical projections to the centrum medianum and the arcuate nucleus of the dorsal thalamus are described.

G. W. T. H. FLEMING.

Hypothalamic Regulation of Temperature in the Monkey. (*Arch. Neur. and Psychiat., vol. xxxviii, p.* 445, *Sept.*, 1937.) *Ranson, S. W., Fisher, C., and Ingram, W. R.*

The normal rectal temperature of the monkey varies between 100° and 101·5° F. Post-operative hyperthermia develops in the monkey when bilateral lesions are made in the lateral part of the rostral portion of the hypothalamus, i.e., in the region around the fornix rostral to the mamillary bodies. Hypothermia develops when the bilateral lesions are situated dorsolateral to the rostral part of the mamillary bodies. Tests in the cold room need to be made on monkeys with hyperthermia, since cats with rostrally placed hypothalamic lesions showed impaired regulation against heat without any impairment of the capacity to resist cold. The most caudally placed lesions cause true poikilothermia. Recovery from hyperthermia occurred as a rule within twenty-four hours, but hypothermia lasted many days. In two cases of hyperthermia in man, the lesions were described by Alpers as confined to structures near the wall of the third ventricle.

G. W. T. H. FLEMING.

Angio-architecture of the Substantia Nigra and its Pathogenic Significance. (*Arch. Neur. and Psychiat., vol. xxxvi, p.* 118, *July*, 1936.) *Finley, K. H.*

The substantia nigra is supplied with blood by four pial arteries—the basilar, the posterior cerebral, the posterior communicating and the choroid. There are no end-arteries. Most of the parenchymal arteries supplying the substantia nigra also supply neighbouring nuclei. Most of its veins drain blood only from this nucleus. Within the substantia nigra the density of the capillaries parallels closely the number of ganglion cells in any given part.

G. W. T. H. FLEMING.

Researches on the Physiology and Pharmacology of the Autonomic Nervous System. I. Is the Inversion of the Adrenaline Effect by Treatment with 933 F *due to Parasympathetic Excitation?* (*Arch. Sci. Biol.* [*Italy*], *vol. xxiii, pp.* 14–21, 1937.) *Lombroso, U., and Zumma, C.*

The experiments were done on dogs. The answer is negative, since the effect persists after atropinization. The poison of *Bufo vulgaris* has all the biological and chemical actions of adrenaline, including the hypertensive action. However, while the hypertensive action of adrenaline is inverted by 933 F, that of *Bufo vulgaris* poison is unaffected. P. F. METILDI (Chem. Abstr.).