Part III.—Epitome of Current Literature.*

1. Anatomy and Physiology.

The Cerebral Blood-flow in Man as Influenced by Adrenaline, Caffeine, Amyl Nitrite and Histamine. (*Amer. Heart Journ., vol. x, pp.* 916–24, 1935.) *Gibbs, F. A., Gibbs, E. L., and Lennox, W. G.*

Intravenous injections of large amounts of adrenaline caused a greatly increased cerebral blood-flow, but small amounts caused only a slight increase. Caffeine-sodium benzoate caused a decreased flow and increased blood-pressure. Amyl nitrate caused an increased flow and a lowered blood-pressure, suggesting dilatation of the cerebral vessels. Histamine caused a gradual progressive increase in blood-flow. Measurements were made with a thermo-electric flow recorder.

E. W. Scott (Chem. Abstr.).

The Effect of Injecting Certain Electrolytes into the Cisterna Magna on the Blood-Pressure. (*Amer. Journ. Med. Sci., vol. cxci, p.* 835, *June,* 1936.) *Resnik, H., et al.*

The intracisternal administration of potassium chloride caused a marked rise in the blood-pressure of dogs. Sodium chloride was without effect. Calcium salts produced only decline in blood-pressure, but had a marked and prolonged effect in preventing a rise in blood-pressure from subsequent injections of potassium chloride. Salts such as oxalate, phosphate and citrate, which diminish the ionization of calcium, had marked pressor effects. Lead caused a delayed but prolonged rise in blood-pressure. All these actions were observed following the use of doses which were ineffective when administered intravenously. The site of action of these electrolytes appeared to lie in or near the floor of the fourth ventricle. Effects persisting after section of the brain-stem above this level, were not obtained after section below, and were elicited by the application of as little as ·1 c.c. directly to this area.

All these electrolytes, given in large doses, produced death by respiratory paralysis. Marked initial stimulation of breathing was produced by potassium phosphate, oxalate and citrate, but not by calcium and magnesium. The former salts also caused general restlessness and muscular twitchings. These effects were relieved by ionized calcium salts. G. W. T. H. Fleming.

The Role of the Autonomic Nervous System in the Production of Pain. (*Journ. Amer. Med. Assoc., vol. cvi, p.* 350, *Feb.* 1, 1936.) *Davis, L., and Pollock, L. J.*

The authors show by experiments that the impulses of referred pain travel from the viscera along with either autonomic or spinal sensory fibres to the spinal cord by way of the posterior roots. After passing over a synapse with cells in

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the antero-lateral column, the impulses travel over pre-ganglionic efferent fibres to the autonomic ganglions. Post-ganglionic efferent fibres then carry the impulses to the skin, where the sensory end-organs are stimulated. The only proved contribution of the autonomic system to the production of pain is in its efferent arc. T. E. BURROWS.

The Afferent Path of the Pupillary Light Reflex in the Monkey. (*Brain, vol. lix, p.* 234, *June,* 1936.) *Magoun, H. W., et al.*

An investigation of the afferent path of the pupillary light reflex in the monkey by electrical stimulation of the interior of the brain-stem, with the aid of the Horsley-Clarke instrument, indicates that the light reflex fibres traverse the portion of the optic tract which runs medial to the lateral geniculate body, and passes caudally along the lateral and dorsal aspects of the medial geniculate body, to reach the brachium of the superior colliculus. It is clear that after reaching the brachium of the superior colliculus the light reflex pathway does not enter the superior colliculus itself, but turns rostrally and medially into the pre-tectal region, or the transition area between thalamus and midbrain. From the pre-tectal region the pathway descends around the rostral end of the central grey matter of the aqueduct to the oculomotor nuclei. Central crossings in the path occurred both in the posterior commissure and ventral to the cerebral aqueduct in the immediate vicinity of the oculomotor nuclei. G. W. T. H. FLEMING.

The Motor Cortex in Man in the Light of Hughlings Jackson's Doctrines. (*Brain, vol. lix, p.* 135, *June,* 1936.) *Foerster, O.*

The writer, in discussing the precentral area, draws attention to the relatively large extent of the finger area in which each finger has its special representation, to the fact that there is a bilateral representation in the cortex of different parts of the body, and that the foci overlap. This latter is shown well by experiment. When the thumb-focus is stimulated by galvanic threshold stimuli at intervals of one second, the first to the fourth stimuli result in movement of the thumb, the fifth this movement to a less degree, and the sixth no movement of the thumb, but a movement of the index finger; similarly with the seventh; with the eighth all the fingers move but the thumb does not; with the ninth the finger movements are barely visible, with the tenth and eleventh the hand moves, and on the twelfth the primary effect, the movement of the thumb, reappears.

Small destroying lesions in the cortex can be repaired to a considerable degree. The restitution depends on the compensation which is furnished, first by the cortical elements lying in the adjacent unimpaired foci, and secondly by the ipsilateral precentral convolution.

The two areas composing the precentral gyrus, area 4 and area 6aα, differ from each other by their threshold of excitability, 6aα needing a considerably stronger stimulus than 4, amounting to from 1–2 m.a. Under general narcosis, area 6aα becomes inexcitable to the galvanic current and under deep narcosis even to faradic currents. Area 4 preserves its excitability under these circumstances. The impulses from 6aα pass to area 4 before they leave the cortex via the efferent system. When area 6aβ is stimulated under local anæsthesia by strong faradic currents a complex mass movement of all parts of the contralateral half of the body occurs. Head, eyes and trunk are turned to the contralateral side and the contralateral arm and leg execute combined movements. The arm is raised and abducted, the forearm flexed, the hand pronated and the fist is closed or opened. The leg is simultaneously flexed at the hip and knee with dorsal flexion of the foot and toes, constituting a flexor synergy of the leg.

The main symptoms resulting from destruction of the anterior central convolutions are:

(1) The negative symptoms are loss of the isolated innervations of single muscle groups, loss of the most specialized movements, and loss