

## GENERAL CONCLUSIONS.

In the dog, cat, rabbit, cavy, rat, and mouse, electrical stimulation of the cerebral cortex over definite regions produces regularly certain movements. These animals are, however, not on the same physiological plane with regard to this subject. The dog and the cat are more closely related, and fall into a physiological group by themselves. The rabbit, the cavy, the rat, and the mouse constitute another group. There are well defined differences for the cat and the dog. The same applies to the members of the other group. In the cat and the dog the motor areas are better defined than in the members of the other group.

In the case of all these animals it has been clearly demonstrated that all motor centres are not functional equivalents—some respond more readily and produce better-defined movements than others. They seem to be better organised. There appears to be all degrees of this functional variation down to zero. The rabbit is an especially good illustration of some phases of this principle.

The cortical localisation mapped out by Ferrier for the dog, cat, rabbit, cavy, and rat is in the main confirmed by the present investigator, but considerable allowance must be made for individual differences, and it is important, as has been just pointed out, to recognise that all motor centres in the same animal are not functionally equivalent in the sense explained above.

The removal of motor centres in the animals, made the subject of this investigation does not lead to complete loss of the corresponding movements, and in some cases the difference between the intact animal and that operated on is, after a few days, relatively slight; so that it is plain that motor centres in such animals are not strictly comparable with motor centres in the primates. In other words: here again the question of degree of localisation and functional organisation (among others) must be considered.

The bird is on a wholly different plane. None of the ordinarily recognised movements on stimulation of the cerebral cortex can be excited in the bird. On the other hand, certain eye movements, both intrinsic and extrinsic, follow as a result of stimulation of the cortex.

## REFERENCES.

<sup>1</sup> Published in the *Transactions of the Royal Society, Canada*, for the current year. <sup>2</sup> *The Functions of the Brain*, Second Edition, London, 1886. <sup>3</sup> On the Homoplasty of Rodents, Insectivores, and Carnivores, *Journ. of Anat. and Phys.*, Oct., 1895. <sup>4</sup> *Loc. cit.*, p. 225. <sup>5</sup> *Loc. cit.* <sup>6</sup> *Exper. Beitrag. z. electrisch. Reiz. d. Hirnrinde, Arch. f. Psych.*, vi, pp. 719-722. <sup>7</sup> *Loc. cit.* <sup>8</sup> *Loc. cit.* <sup>9</sup> *Jahr. f. kinder. u. phys. Erziehung*, 1876. <sup>10</sup> *Loc. cit.*

## SOME ANATOMICAL AND PATHOLOGICAL SPECIMENS.

Dr. D. S. Lamb, of the Army Medical Museum, Washington, U.S.A., exhibited in the Anatomical and Pathological Museum some specimens showing anomalies and lesions. The following is Dr. Lamb's description of the specimens:

*Eighth Rib Sternum.*—In this specimen the eighth cartilage was attached on the left side. The peculiar interest of the case was in the fact that the subject, a German woman, was left-handed; and it illustrates the theory of Professor D. J. Cunningham<sup>1</sup> that the occurrence of the anomaly in the human subject depends on increased use of the arms, being found oftenest on the right side when not found on both. The increased use of the arm requires an increased basis of muscular action on the thoracic cage.

*Bilateral Ankylosis of Jaw.*—In this specimen the condyloid processes were firmly and smoothly united by bone to the zygomatic processes and glenoid fossæ, and on the left side also, to the articular eminence. No osteophytes were present. There was much atrophy of the alveolar processes. The left molar teeth had been removed for feeding the patient, who was a mulatto woman, aged 43, a cook, who had fixation of the jaw for twenty-nine years. She gave a history of ear trouble but was not deaf, and no ear lesion was found *post mortem*. She also gave a history of scrofula, rheumatism, influenza, and malaria. She died of general tuberculosis. Dr. Lamb thought that she had had a sharp blow on the chin, which in a scrofulous constitution might have set up a troublesome arthritis.

*Exaggerated Papillæ of Corona Glandis.*—The specimen was from a negro. There was a double row of papillæ, about

1 m. long, on the corona, becoming single on the under side. The condition, which must perhaps be regarded as reversionary, seemed to be rather rare in the experience of even the syphilologists; but Sprunck<sup>2</sup> found exaggerated papillæ in 39 per cent. of 300 healthy men, presumably Germans, between 18 and 25 years old.

*Congenital Tracheo-Oesophageal Fistula.*—A valvular opening one-sixth of an inch in diameter, corresponding to sixth to eighth tracheal rings, was seen in the median line. There had evidently been a failure of complete occlusion. The condition occurred in a white male infant, aged 7 weeks, which died of inspirational pneumonia. The case was interesting because of its rarity, its serious character, and the impossibility of diagnosis. It was published in full in the *Philadelphia Medical Times*, iii, 1872-73, p. 705.

*Olecranon Perforation.*—This specimen, from a child aged about 12 years, was found in an Indian mound in Dakota. The interest of the case was the youth of the subject. Dr. Lamb had seen the perforation in only a few children, and only among Indians, and never, he thought, below the age of about 12 years. The subject of olecranon perforation had been pretty thoroughly discussed by him in the *American Anthropologist*, iii, 1890, p. 159; and, later, by Dr. Washington Matthews, United States Army, in his report on the Hemenway Collection of Bones from the Salado Valley, etc., in the *Memoirs of the National Academy of Sciences*, vol. vi, 7th memoir. Dr. Lamb expressed the opinion that the opening resulted from atrophy caused by pressure of the olecranon process. In the case of children younger than 12 years it might yet be necessary to admit a possibility of heredity in its causation.

*Precolumbian Syphilis.*—A series of bones from the same skeleton were shown. They had been found 12 feet deep beneath unbroken strata of earth, in an Indian mound near Lighthouse Landing, Fernandina, Florida, U.S.A. In the opinion of the finder, Professor Clarence B. Moore, of the Academy of Natural Sciences, Philadelphia, they were an original burial and precolumbian. They all showed inflammation in the form of smooth elevations, reticular exostoses, and extensive deep erosions. Nearly all the epiphyses were absent; of those which were present the joint surfaces were normal. Probably, therefore, there was no disease of the joints. The specimens, as Dr. Osler said on viewing them, could hardly be anything else than syphilitic. The question of their being precolumbian could, in Dr. Lamb's opinion, be safely left to Professor Moore, who, he believed, was one of the best authorities on the subject. In this connection the following quotation was made from a recent work of Professor Moore's: "In no previous mound work have we found so great a percentage of pathological specimens as in this mound; and, as has not been the case in other mounds, entire skeletons seemed affected, and not one or possibly two bones belonging to a skeleton. The pathological conditions were so marked, and cranial nodes so apparent, that, in view of the fact that no objects positively indicating white contact were discovered in the mound, though the utmost care was exercised by a trained corps of assistants, we are compelled to regard the bones with the greatest interest since, evidence of contact with the whites being wanting, we must look upon these bones as of precolumbian origin. We may state here that all bones preserved by us came from depths in the mound which insure their derivation from original burials. These bones, found 8 to 12 feet from the surface, and lying beneath numerous undescribed layers, are as unmistakably of an early origin as any yet described, and much more reliable than most."

## REFERENCES.

<sup>1</sup> *Jour. of Anat. and Phys.*, xxiv, 1889 90, p. 128. <sup>2</sup> *Konigsberg, Dissertation*, xxiii, 1897. "Ueber die vermeintlichen Tyson'schen Drüsen." <sup>3</sup> *Additional Mounds of Duval and Clay Counties, Florida*, 1896, p. 25.

ERRATUM.—In the report of the discussion on the Teaching of Anatomy in the Section of Anatomy and Physiology at the annual meeting at Montreal, published in the *BRITISH MEDICAL JOURNAL* of October 2nd, 1897, pp. 878-9, part of the remarks made by Professor F. J. Shepherd were, owing to a confusion in the manuscript of the report, attributed to Professor Wesley Mills. In the report under the name of Professor Mills, all the remarks from the twelfth line, "He thought that one needed to be a practitioner," to the end, should have been attributed to Dr. Shepherd.