

4. In spite of their extra-innervation, the abductors of the vocal cords are physiologically weaker than their antagonists.

5. These antagonists, the adductors of the vocal cords, have primarily nothing at all to do with respiration, and ordinarily serve the function of phonation only. Their respiratory functions are limited to—

(a.) Assistance in the protection of the lower air passages against the entry of foreign bodies.

(b.) Assistance in the modified and casual forms of expiration known as cough and laughing.

VI. "A Record of the Results obtained by Electrical Excitation of the so-called Motor Cortex and Internal Capsule in an Orang Outang (*Simia satyrus*).” By CHARLES E. BEEVOR, M.D., F.R.C.P., and VICTOR HORSLEY, B.S., F.R.S. (From the Laboratory of the Brown Institution.) Received June 5, 1890.

(Abstract.)

Having been engaged for some time in investigating the representation of motor function in the cortex of the bonnet monkey, we thought it advisable to perform the same in an anthropoid as likely thereby to gain a closer insight into the modes of representation in man.

We first describe the peculiarities noticeable in the configuration of the convolutions in the orang.

As in the bonnet monkey, after narcotisation with ether, we divided the cortex into squares of 2 millimetres side, and excited the same with minimal stimuli from the secondary coil of an inductorium.

General Results.—The mode of representation of motor function was found to be highly specialised. The general plan was identical with that seen in the bonnet monkey in that the representation of each segment and part of the body in the orang was arranged in the same order as that according to which we found the representation of the primary movements to be grouped in the macaque monkey.

In addition to this, the areas for the representation of the different parts of the body we found not to be continuous with each other, but that between the areas of representation (for instance, of the face and the upper limb) there were regions of inexcitable cortex showing a degree of differentiation not obtained in the lower monkey.

A further remarkable evidence of specialisation was noticeable in

the fact that excitation of any one point elicited rarely more than one movement and only of one segment, *e.g.*, simple flexion of the elbow. Consequently, any sequence of movement or march was conspicuously infrequent.

Finally, the character of each movement and its localisation was recorded.

After the cortex had been removed, we proceeded to stimulate the fibres of the internal capsule, and the results obtained confirmed those obtained from the bonnet monkey, and at the same time showed the relative position of the cortical areas.

The internal capsule was exposed by removing half of one hemisphere by a horizontal section; the outlines of the basal ganglia were then transferred to paper ruled with squares of 1 millimetre, and the resulting movement obtained by stimulating each of these squares contained in the internal capsule was recorded. The movements obtained correspond generally with the results which we have in another paper presented to the Royal Society and read on December 12, 1889.

VII. "A further Note on the Influence of Bile and its Constituents on Pancreatic Digestion." By SIDNEY MARTIN, M.D., Pathologist to the Middlesex Hospital, British Medical Association Research Scholar, and DAWSON WILLIAMS, M.D., Assistant Physician to the East London Hospital for Children, Shadwell. Communicated by E. A. SCHÄFER, F.R.S. (From the Physiological Laboratory, University College, London.) Received June 9, 1890.

Ox Bile and Pancreatic Extract.

In a previous communication* we have pointed out that in the pig the presence of bile or bile salts hastens the digestion of starch by pancreatic extract, the amount of dextrine and of sugar being considerably and proportionately increased. The same holds good for ox bile salts and extract of ox pancreas, so far at least as the increase in the amount of sugar is concerned, and for human bile and pancreatic extract (pig's). Experiments were conducted in the same manner as those with pig's secretions. In one experiment four vessels, A, B, C, D, containing 100 c.c. distilled water in which 2 grams of starch had been boiled, were taken. To B 2 per cent., and to C 4 per cent., of ox bile salts were added and dissolved. Equal quantities of glycerine extract of pancreas were added to A, B, and C,

* 'Roy. Soc. Proc.,' vol. 45, p. 358.