As a consequence of this result some of the conclusions, at which I had previously arrived (Proceedings Jan. 1893), must be withdrawn, or at least considerably altered.

These conclusions were based on the result, derived by STUMPE, RISTENPART, and others, *viz.* that, if the stars are arranged in groups according to their proper motions, the mean parallaxes of these groups are approximately proportional to the mean proper motions. It is only subsequently that I found that this result was arrived at by an illegitimate reasoning and is certainly not in accordance with the facts.

For the stars with *large proper motions* (say larger than 0".10) it follows from the above that the variation of the quantity Q in the paper quoted, is, either entirely or at least to a large extent, a consequence, not of a condensation of the stars of type II in the neighbourhood of the sun, but of the fact that the number of faint stars of the first spectral type, as compared to the number of bright stars of the same type, is not so large as in the case of the second type.

Physiology. — H. D. BEYERMAN: "*On the influence upon respiration of the faradic stimulation of nerve tracts passing through the internal capsula.*" (Communicated by Prof. C. WINKLER).

In a recent publication WINKLER and WIARDI BECKMAN [1]), in stimulating with the faradic current the lateral part of the praecrucial circumvolution in a dog's brain, have proved the influence of this field of the cortex upon the respiratory movements. Acceleration of rhythm and an inspiratory position of the thorax were the effects generally obtained during the faradisation of this spot (fig. 1, compare the fields 11, 12, 15 and 16).

Repeating their experiments I found, that faradisation of the most proximal parts of the above mentioned spot (the fields 15 and 16) causes only acceleration of rhythm (or if respiration is very frequent, increase of the amplitude of each respiration), whereas faradisation of its caudal part (the fields 11 and 12) is followed by a forced inspiratory position of the thorax.

Hence there are to be adopted, two cortical spots regulating the respiration, one, proximal, accelerating rhythm, the other caudal, forcing the inspiration. Both are situated on the lateral end of the praecrucial circumvolution.

[1] WINKLER and WIARDI BECKMANN. Proceedings Vol. I, 25 March 1899.

In repeating the experiments of SPENCER [1]) I succeeded to define the traject of the efferent fibres from the two above mentioned centra through the corona radiata and the capsula interna.

Forced inspiratory position of the thorax is always obtained, during the faradisation of a distinct spot situated, in horizontal sections through the brain (fig. 4 and fig. 6 in +), about the middle of the corona radiata and of the capsula interna. In frontal sections it was found (fig. 9 in +) in the pes pedunculi (curves fig. 5, 8 and 10).

The central traject of the pyramidal tract is stimulated in these experiments, and even if the hemispheres are totally removed, forced inspiration (accompanied by stretching of the neck, by lifting up the tail, and by ejecting urine in a jet) still follows during the stimulation of this tract.

Acceleration of rhythm is always caused by faradisation of a distinct spot, situated in horizontal sections through the corona radiata and through the higher level of the capsula interna (fig. 4 and fig. 6 in 0) proximal to the former, close to the foremost part of the caput nuclei caudati.

In frontal sections this spot is found (fig. 9 in 0) on the latero ventral face of the nucleus caudatus, and dorsal in respect to the former spot (to compare curves in fig. 5, 7, 8 and 10).

Therefore this nerve tract, by which the acceleration of rhythm is conducted, runs through the proximal part of the corona radiata, in the foremost part of the internal capsule, proximal to its knee, close to the antero- and ventral face of the nucleus caudatus.

Perhaps this nerve tract may find a preliminary end in the basal ganglia, but my efforts in following its traject through them are not crowned by a positive result SPENCER followed it until a region in the vicinity of the grey surroundings of the third ventricle, where it perhaps could be identified with the centrum of acceleration of rhythm, mentioned by CHRISTIANI.

In horizontal sections, cutting through the capsula interna, two more spots, (fig. 6 on △ and ▭) are found, the influence of which upon respiration may be demonstrated by faradisation. The more proximal one answers to faradisation with a slight retardation of rhythm, whereas the faradisation of the caudal part, reaching as far as the white layer round the cornu Ammoni, sets a very intense inhibition. The respiration is retarded, or may be even stopped in an expiratory position of the thorax.

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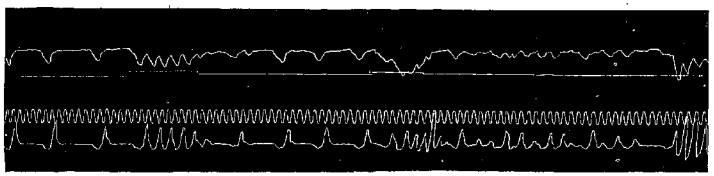
[1]) SPENCER. Phil. Transactions. Vol. 185, p. 609

Fig. 1

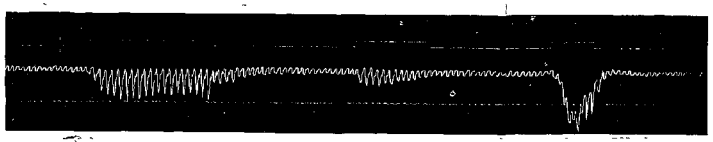
Division of the cerebral surface of the dog's brain.

Fig. 2.



Results of the stimulation of the field 16 and 11. (Distance of secondary coil 8.5 cm.)

Fig. 3.

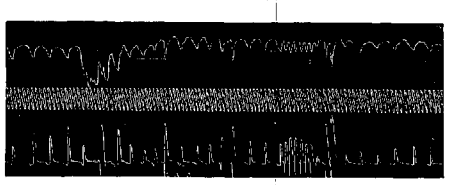


Result of stimulation of the field 16 (two times). Afterwards that of 12. (Distance of secondary coil 7 cm.)

Fig. 4.

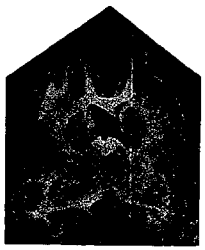
Horizontal section through the higher level of the internal capsula.

Fig. 5.



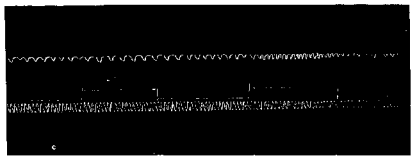
Result of stimulation of the field that is marked with a cross in fig. 4. Afterwards that of the spot marked with a circle. (Distance of secondary coil 10 cm.)

Fig. 6.



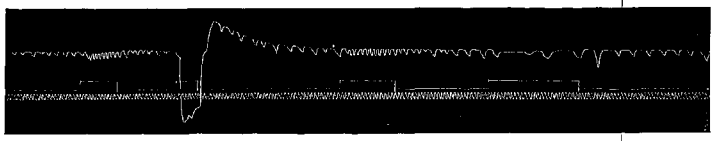
Horizontal section through the internal capsula.

Fig. 7.



Result of stimulation of the spot marked with a triangle in fig. 6. Afterwards that of the spot marked with a circle. (Distance of secondary coil 7 cm.)

Fig. 8.

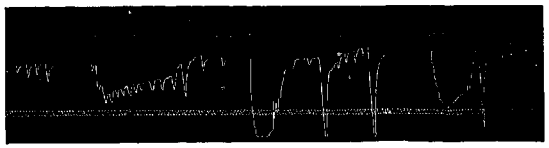


Result of stimulation of the spots marked in fig. 6 with a circle, a cross, a circle and a square. (Distance of secondary coil 6.5 cm.)

Fig. 9.

Frontal section through the brain.

Fig. 10.



Result of stimulation of the spot, marked in fig. 9 with a circle. Afterwards two times that of the spot marked with a cross.