

digastric muscles, and the strain on their central parts, as explained above, leads to the disappearance of muscular fibre in the neighbourhood of the tendinous insertion, which accordingly becomes a tendon uniting two fleshy bellies. On the other hand, in most of the Mammalia, the usual attitude is prone, and the cavity of the mouth, when the food is being swallowed, is in a line with the œsophagus, or nearly so; in such a position the mylo-hyoid and genio-hyoid muscles can act effectively in elevating and drawing the hyoid bone forwards, and deglutition is effected without the aid of the digastric muscles, which are accordingly simple and unconnected with the hyoid, as in the dog;* or, if intersected, the tendinous band is either the origin of a raphe continued inwards, as described in *Gymnura* and *Epomophorus* (which may be, as in these genera, wholly unconnected with the hyoid), or the rudiment of such in an ancestral form.

IV. "Note on Protagon." By HENRY E. ROSCOE, LL.D., F.R.S.
Received March 16, 1881.

In his communication to the Royal Society of January 6th last, on the subject of the presence or absence of potassium in protagon, Dr. Thudichum endeavours to raise an entirely false issue. The question I had to decide was not whether protagon contains a trace of potassium, but whether, to quote Dr. Thudichum's own words, it contains "no less than 0.76 per cent. of potassium." In the first instance I endeavoured to settle this matter by spectroscopic investigation, and employed two samples of protagon which had been prepared under Dr. Gamgee's direction in the course of the research of which he communicated the results to the Royal Society. In one of these samples, which had been four times crystallized, I was unable to detect any potassium; the quantity of the body at my disposal was however small, as the rest of the specimen had been employed in previous work, and Dr. Gamgee placed in my hands a large sample of protagon only twice crystallized, which had been prepared by Dr. Blankenhorn under his direction, and it was an analysis of this latter specimen which I communicated to the Royal Society. As stated, I estimated by spectroscopic means the amount of potassium present in 1 grm. of the substance to be $\frac{1}{20}$ of a milligram, that is, 0.005 per cent. To these observations of mine, Dr. Thudichum replied by a paper entitled "On the Modifications of the Spectrum of Potassium which are effected by the presence of Phosphoric Acid, and on the Inorganic

* The difficulty experienced by a dog in swallowing when the head is bent forwards is well known to every one who has seen one attempting to swallow even a moderate sized morsel when seated erect in the familiar attitude known as "begging."

Bases and Salts which are found in combination with the Educts of the Brain." In this paper an attempt is made to prove that remarkable difficulties exist in obtaining the characteristic potassium line, and when even pure potassium phosphate is strongly heated. I do not deem it necessary to discuss with Dr. Thudichum, as bearing upon the detection of potassium by the spectroscope, the accuracy of such a statement as the following:—"Even a large bead of pure potassium phosphate, when ignited before the slit of the spectroscope never produces even at a white heat any such intense red potassium line as the smallest bead of potassium chloride," but shall merely state that, by numerous experiments, I have satisfied myself of the ease with which traces of potassium phosphate can be detected spectroscopically even in presence of a large excess of phosphoric acid; and that I am convinced that the estimate of the quantity of potassium present in the protagon reported upon in my first communication was a remarkably close approximation to the amount really present.

After Dr. Thudichum's reply, which seemed to leave it an open question, whether any reliance should still be placed upon his statement that protagon contained 0.76 per cent. of potassium, I determined to check that statement by a gravimetric analysis. Unfortunately a sufficient quantity of the sample first analysed was not available, and Dr. Gamgee supplied me with the remains of 130 grms. of protagon, twice crystallized, which had been prepared under his eye by Mr. Adolph Spiegel for experiments on the products of decomposition of that body. It was this specimen in which an analysis proved the presence of 0.0236 per cent. of potassium. So far, therefore, from confirming Dr. Thudichum's statement, this specimen was found by me to contain less than one-thirtieth of the amount of potassium which Dr. Thudichum asserts to be present in protagon.

That the first crystallizations of a proximate principle of the brain, such as protagon, should contain a trace of potash-salts is what would naturally have been anticipated from a knowledge of the nature of the soluble salts of the brain, and, therefore, to argue against the individuality of protagon, because of the presence of 0.0236 per cent. of potassium in a second crystallization-product, appears to be entirely fallacious.