

ject obliquely inwards and towards the end of the bladder, acts, together with the spring valves at the mouth of the bladder, in utilizing each fresh struggle of the captive for the purpose of pushing it further inwards. If any of my readers wish for specimens of this interesting plant I shall be enabled in a few days to forward them at a very nominal cost.

Of its destructive powers all I can say is, that out of 150 newly-hatched perch placed in a glass vessel only one or two were alive two days subsequently, and I hope in a few days to be in a position to speak of its powers *en natura*.

I must also tender my hearty thanks to Professor Moseley for his unselfish kindness and courtesy in furnishing me with notes and all necessary information, at a time when his hands are full with this term's work, and any one who knows rightly the duties of an Oxford professor will agree with me that the position is an arduous one. Such men as Professor Moseley are few and far between, for, like fishermen, I find that among scientific men there is an amount of jealousy which ought not to exist, and I therefore regard the action of Mr. Moseley in this matter with such feelings of gratitude as are not easily obliterated.

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139.—A CARNIVOROUS PLANT PREYING ON VERTETBRATA.

By Prof. H. N. MOSELEY.

[From Nature, May 22, 1884.]

An interesting discovery has been made during the last week by Mr. G. E. Simms, son of a well-known tradesman of Oxford. It is that the bladder-traps of *Utricularia vulgaris* are capable of catching newly-hatched fish and killing them. Mr. Simms brought to me for examination a specimen of *Utricularia* in a glass vessel, in which were numerous young roach newly hatched from a mass of spawn lying at the bottom. Numbers of these young fish were seen dead, held fast in the jaws of the bladder-traps of the plant. I had never seen *Utricularia* before, and am indebted to my colleague, Prof. Burdon Sanderson, for the identification of the plant and a reference to Cohn's research on it. Mr. Simms supplied me with a fresh specimen of *Utricularia* in a vessel with fresh young fish and spawn, and in about six hours more than a dozen of the fish were found entrapped. Most are caught by the head, and when this is the case the head is usually pushed as far into the bladder as possible till the snout touches its hinder wall. The two dark black eyes of the fish then show out conspicuously through the wall of the bladder. Rarely a specimen is seen caught only by the tip of the snout. By no means a few of the fish are, however, captured by the tail, which is swallowed, so to speak, to a greater or less distance, and I have one specimen in which the fish is caught by the yolk sac. Three or four instances were observed in which a fish had its head swallowed by one

bladder-trap and its tail by another adjacent one, the body of the fish forming a connecting bar between the two bladders.

I have not been able to see a fish in the actual process of being trapped, nor to find one recently caught, and showing by motion of the forepart of its body signs of life. All those trapped were found already dead, but I have had no opportunity of prolonged observation, and it will be remembered that Mr. Darwin in his account of the trapping of crustacea, worms, &c., by *Utricularia*, states that he was not able to observe the actual occurrence of the trapping of an animal, although Mrs. Treat, of New Jersey, often did so. I think it probable that the fact described by Mr. Darwin, and which is easily verified, that the longer of the two pairs of projections composing the quadrifid processes by which the bladders of *Utricularia* are lined "project obliquely inwards and towards the posterior end of the bladder," has something to do with mechanism by which the small fish become so deeply swallowed, so to speak. The oblique processes, set all towards the hinder end of the bladder, look as if they must act together with the spring valves of the mouth of the bladder in utilizing each fresh struggle of the captive for the purpose of pushing it further and further inwards. On cutting open longitudinally some of the bladders containing the heads and foreparts of the bodies of fish and examining their contents, I found the tissues of the fish in a more or less slimy deliquescent condition, no doubt from decomposition, for Mr. Darwin failed to detect any digestive process in *Utricularia*. The quadrifid processes were bathed in the slimy semi-fluid animal substance, and the processes themselves appeared to contain abundance of fine granular matter, possibly the result of absorption, but the large quantity of surrounding animal matter present rendered the observation uncertain. The usual swarms of infusoria were present in the decomposing matter.

Specimens of the *Utricularia* with the little fish fast in the bladder-trap, and their heads or tails hanging out, can be well preserved in spirits, and show the conditions well, notwithstanding that the plant becomes colorless, and there is no longer the marked contrast between the glistening white dead fish and the green bladders, which in the fresh condition renders the combination of the trap and prey conspicuous.

Mr. Simms, by whose permission I write this, intends shortly to publish an account of his observations himself. I have advised him to endeavor to prepare spirit specimens of *Utricularia* plants with numerous trapped fish *in situ* for sale to those interested in the matter who may care to apply for them.* His address is 37 Broad street, Oxford.

* Specimens of the entrapped fish were received from Professor Moseley by the United States Fish Commission June 9, and are deposited in the National Museum. The *Utricularia* is a large, rootless, water-plant, which floats freely in the water. Its leaves bear the small bladders which entrap the fish fry. Eleven species are enumerated in the Fish Commission Bulletin, 1883, p. 260, as useful in carp ponds. While these do not include the *vulgaris*, it is probable that some of these may have the same ability to catch the small fish. In that case even these plants must be excluded from carp ponds.—C. W. S.