

1887 1:58-59

even though the exact locations were pointed out, hence its perfect concealment may readily be imagined.

The diameter of the nest is one inch, and its weight fifteen grains.

### THE MUSKRAT AND THE UNIO.

BY PROF. AUSTIN C. APGAR.

There has been much discussion in regard to the method by which the muskrat (*Fiber zibethicus*, Cuv.) opens the Unios which it uses for food, and many methods have been suggested as to the manner in which the body is taken from the shell. Nearly every method proposed has been based upon the strength of the adductor muscles and the supposed impossibility of overcoming their power without killing, or at least poisoning the animal. In experimenting with some Unios last summer, I found that it was an easy matter to get the shell open as far as the ligament would open it, and that in this condition it required much less than a muskrat's strength to force it entirely open.

When the Unio is traveling along, its foot projects a half inch or more from the lower side of the shell. If, while the foot is in this, its usual condition, the two valves be pinched, the foot will be caught between the closing shells; if the pinching be continued for a half or three-quarters of a minute, the animal, probably from the pain produced, becomes paralyzed and unable to make use of the adductor muscles. Now, if the shell be released, it will fly open about one-half inch, and can easily be torn entirely open. The strength needed to keep the foot from being drawn into the shell is not great, being far less than that of the jaws of the muskrat.

So all that it is necessary for *Fiber* to do when he wants his dinner is to swim along until he sees a *Unio* at the bottom, dive, and quickly seize the animal; then swim leisurely to his hole or the bank. By the time he has reached a good place for eating his meal the *Unio* will be ready to open far enough for the insertion of paw or nose, and the luscious bivalve can be devoured from the whole shell. In my own experiments I was usually, though not always successful. The failures I think were always due to the fact that not quite enough of the foot was caught by the closing shell; this was caused by my disturbing the animal before taking hold of it. If the muskrat be not more supple than I, he must occasionally miss his meal.

### ANALYTICAL KEY TO THE FRESH-WATER POLYZOA.

The Polyzoa are so plentiful in our ponds and slow streams, and so exquisitely beautiful, that those who are lovers of nature, although not professional naturalists, should be more familiar with them than the majority of such people seem to be. The amateur microscopist, or the advanced one indeed, can find no more attractive field for investigation than that occupied by the fresh-water Polyzoa. They abound almost everywhere in our ponds and lakes. They encrust the lower surfaces of the stones, the floating log, the lily stems; they cling to the roots of *Lemna*, and even form huge, slightly adherent, or often floating, masses of jelly, into which the charming animals retreat at the least alarm, and from which they spread their lovely plumes when they feel that all is well with them. They are, therefore, easily obtained. "It is the first step that costs," and here the first cost to the beginner consists in learning to recognize the colonies with the naked eye.