THE UNIONIDÆ OF THE OHIO RIVER. BY R. ELLSWORTH CALL.

[ABSTRACT.]

There are now recognized in the freshwater molluscan fauna of North America more than one thousand representatives of the great family of Unionidæ, or fresh-water mussels. A few of these forms, which constitute a peculiarly well-marked division of the family, occur in Mexico and in Central America. Less than a score of species are found in Canada. The rest are peculiar to the United States and, for the greater part, are found east of the Rocky Mountains. More than ninety per cent. of all known forms are from the regions east of the Mississippi and south of the Ohio Rivers. The center of distribution for the described southern forms is the great central plateau region of Middle Kentucky and Tennessee, Western North and South Carolina, and Northern Georgia and Alabama. Within the area as above limited, occur nearly all the species that are known—outside of the great Unionidæ group known as the *complanatus* division. In all the larger streams, and in most of the smaller, throughout all this region, the members of the family flourish in both great numbers of individuals and species. About eighty per cent. of all described North American forms come from this area, and some thirty per cent. of all are from Tennessee, Alabama and Chattahoochee Rivers, and their tributaries.

This singular, but interesting fact, has never yet received the attention it deserves, for geographic distribution, abundance in individuals, and diversity of form are herein correlated clearly with certain geologic factors. For instance, the family is a very ancient one, and dates back to Devonian times at the latest. The region under consideration has constituted a unique land-mass since a very early period in the history of the continent. It has scarce been subjected to glaciation—at least has not since the geologic record exhibited in its country rock began. The very great diversity of form and the great abundance of these modern representatives of a very ancient type, appear plainly to be related in no small degree to these factors.

In investigating in this field, for some twelve years or more past, the species and distribution of these mollusks, attention was necessarily directed to that peculiar Unionine fauna which lies on the northern border of this area. This was rendered necessary, in the first place, by the fact that the Ohio River had itself furnished most of the earlier described types. The literature of the subject reveals some sixty species, distributed unequally among the three Unionine genera, *Unio*, *Anodanta* and *Margaritana*, and shows the forms distributed among these genera in an abundance which has the relation just given, viz.: *Unio* has the greater number of species and *Margaritana* the least.

It was further discovered that as the Ohio River forms of *Unio* are traced over the regions southwards and their geographic and geologic environment becomes changed, that a large number of them sensibly change their external particular characters and grade into forms to this time regarded as peculiar to the region. At once here was opened up the great question of synonymy, with all the consequences which are involved in a wholesale reduction of species.

This study, then, in its final form, will seek to investigate the synonymy—First, of the shells which have been described from the Ohio River. Second, it will select the most marked species of these river mussels and about them, as types, attempt a natural grouping of the Unionine fauna of the valley and the region south. Third, it will attempt to eliminate the synonyms which have been so multiplied by earlier students who were misled by inadequate data or by the older notions of what constituted a species. It will, further, explain in a measure the way in which the different forms assumed by the sexes came to be regarded as species—an unfortunate condition which the *dilettante* of the present day are making worse. It will, fifth, seek to collect, for convenient reference, all figures and descriptions, in the hope that in this way the historic importance of the earlier descriptions may become apparent. These will be arranged chronologically. The Ohio River constitutes historic conchologic ground; from it must begin, as began the old, the new study of the *Unionidæ*.

THE STREPOMATIDÆ OF THE FALLS OF THE OHIO. By R. ELLSWORTH CALL.

[ABSTRACT.]

The *Strepomatid molluscan fauna* of the Falls of the Ohio is one that is very rich in numbers, but rather poor in species. Including some which will eventually pass into synonymic lists, the total number comprizes but ten species which are distributed among four genera, to wit: *Pleurocera* with three nominal species, *Lithasia* with one species, *Anculosa* with two species, and *Goniobasis* with four species.

The falls mark the line of junction of the Silurian and Devonian strata, which may here be differentiated with very great success and ease. For a distance of some five or six miles the bed of the river is very rocky, with numerous islets of rock, which are always exposed at low water. From one end to the other are innumerable pools in which flourishes a very rich *confervoid flora*, and which furnish a very variable but favorable station for these forms. In numerous places the changes in the current are so marked that at different seasons of the year the

Strepomatid fauna varies with it
toms, and an abundant flora co
abound. At another, where th
confervoid vegetation, the genu
numerous small falls over the
and the bottom is either clean
of the four species of *Goniobas*
the water is changed, a rather
relations exhibit a certain de
haps, serves to explain the ver
place, at different periods of t

The earliest forms that ha
They were discovered and stu
have long since been merged i
ing to allow his claim to origi
with indifferent success, to fi
the literature of conchology w
place. Here it is simply the
their synonymy as now unde
habit which manifestly resul
tives of the family.

The species of *Pleurocer*
moniliferum and *P. elevatum*.
determination, when studied
forms of extreme variation, b
names which ought to have
monger could erect, by carefu
from the simple variations in
done. Thus *Pleurocera canal*
three and even four revolvin
which are entirely purple, a
Hundreds of individuals hav
no tendency to other colora
neled whorls, on which the s
that have plain and well ro
characteristic grooving. Th
tion of the effects of differen