

**A FEW GENERAL NOTES AND REMARKS WITH RESPECT
TO THE LAND AND FRESH WATER MOLLUSCA.***

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A friend of mine, lover and observer of nature, has told me repeatedly that "forty or fifty years ago, snails were plenty, large and beautiful; now you hardly ever see any." Even during the last 22 years (of my collecting), I have noticed a change for the worse. Several species and forms have disappeared at certain places, or become scarcer. The same is true, probably, over most of the state. Owing to deforestation and cultivation, the sheltering places have become more scarce and, what counts more, the atmosphere as well as the soil is less humid and is unsuitable for a large part of molluscan life. (It may be mentioned that the same man states that e. g. "huckleberries" have become scarcer and smaller.)

Still worse is it with fresh water mollusca. Springs are disappearing, runs and creeks are dry during a large part of the summer, rivers come to their lowest stages, when sun-heat kills the animals even where still under a few inches of water, which in itself becomes of poor quality. At many places the banks are denuded of trees and undergrowth, and protection from shade is cut off.

Another factor towards the same end, is the unrestricted discharge of all kinds of refuse and contamination from factories and towns into the rivers and creeks, doubly detrimental with low water. Mr. Geo. H. Clapp has stated, some years ago, that for eighty miles below Pittsburg, hardly a living mussel, or other mollusk could be found in the Ohio River. The same conditions I found at Wheeling: the bottom was covered with a muddy, ferruginous deposit; a very few dead mussel shells of depauperate form were found, but not a living animal or plant. Destruction of life in our "great and beautiful river" will go on and on, if radical measures are not resorted to for "amendment." Some other rivers, or parts of them, are still in a better condition, but almost everywhere the effects of the causes mentioned are noticeable and becoming more so from year to year. As an example on a smaller scale, I cite the eastern branch of the Tuscarawas river, running southeast to Warwick: it is a dreary, black, barren mud-ditch, in which no fish or other animal can live, owing to the refuse of factories, principally at Barberton.

Students of other groups of animals have, no doubt, to tell the same tale, especially the ichthyologists. The wealth of fish which was in our rivers, and still might be in a large measure, is

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disappearing. And last, but not least, the influence on general health is a grave consideration.

But to come back to mollusks. Of late years, the shell and pearl hunters have come, and killed our mussels, where there still were any, by the millions, in rivers and creeks. In many places they have been nearly exterminated, and only the naturalists deplore the fact.

What can we do? When Hebra, the great dermatologist at the University of Vienna, presenting to his students a peculiarly malignant case of a skin disease, asked the practicing student what could be done for the patient, and the young doctor could only shake his head and stand silent, "well, we will have him photographed," Professor Hebra would say. This is about our position. In the first place, we can record the fact, and deplore it. In the second place, we can take a careful inventory of what is still left. And that we should do, energetically: work up the muollsca in the rivers, creeks, springs, swamps, in the forests and copses left, and have them in our records and collections, for future generations to look at. In the third place, we might find some creek here or there, or part of such, preserve it in as natural conditions as possible, eventually with additional ponds, and try to preserve in it, and on its banks, such mollusks as are threatened with extermination. This sounds utterly fantastic! and yet the time may come when such a plan may be considered.

And in the fourth place, and above all, let us unite forces with government officials, and anybody who will try to put an end to the reckless deforestation of our land, and the reckless contamination of our waters with factory and city refuse. Already it is much too late, but still much can be accomplished. I believe it is not below the dignity of the Academy and its members to direct their attention to these eminently important tasks and to do all in their power to promote them.

I know well that I go far beyond my scope with these last remarks, but these matters were so much on my mind that I could not help at least touching them, and I hope to be excused for doing so, even if the topic "mollusks" is only incidental to them.
