

with Van Tieghem, that all plants are carnivorous, and we add that it cannot be otherwise, for how could we in any other way explain the various transformations and the infinite changes of matter which constitute the marvelous equilibrium of nature?

119.—NOTE ON THE CLAMS OF THE PACIFIC COAST.

By R. E. C. STEARNS.

[Letter to Prof. S. F. Baird.]

I have examined the box of clams which just came to hand from Donald Macleay, esq., president of the board of trade of Portland, Oreg.

Mr. Macleay states that they are the Eastern clams, and found at Shoalwater Bay, Washington Territory, which is correct as to their original (indirectly) and present habitat. I was aware of the presence of these clams at the locality given by Mr. Macleay, some months ago, and it would be wise to put the matter on record. Captain Simpson, a public-spirited citizen of San Francisco, of the firm of Simpson Brothers, extensively engaged in the lumber trade, employing a great many vessels in their business, informed me that he had at one time (or at various times) sent up the coast by their captains a quantity of *Mya arenaria* for planting in Shoalwater Bay, and it, *Mya*, had multiplied wonderfully, and now (at the time of our conversation, May, 1884) this clam was abundant there. The clams planted by the direction of Captain Simpson were obtained by him in San Francisco, where *Mya* now "rules the roost," its increase in San Francisco Bay and excellent quality having nearly superseded the native clams, *Tapes* (or *Cuneus*) and *Macoma*; the latter being now seldom seen on the stalls of the fish-markets.

*Mya arenaria*, as I have heretofore stated,\* was first detected on the eastern shore of San Francisco Bay, in 1874, by Henry Hemphill, who collected some rather small and somewhat delicate specimens. These he turned over to Dr. Wesley Newcomb, then of Oakland, Cal., for examination. Dr. Newcomb regarded them as a new species which he described as *Mya hemphillii*.† The largest specimen found at that time by Dr. Hemphill was scarcely two-thirds the size of the average of those now on the market stalls.

Following the completion of the transcontinental railroad about the year 1869-70, some of the oyster firms in San Francisco commenced importing small oysters, *Ostrea virginica*, from the Atlantic side by the car-load for planting in San Francisco Bay, where in a season or so they attain a good merchantable size, and become exceedingly fat and of fine fine flavor. With these importations of small oysters, the spat of *Mya*

\*American Naturalist, May, 1881.

†Proc. Cal. Acad. Sciences, November, 1874.

undoubtedly was accidentally and incidentally introduced to the west coast.

In 1881 Dr. Anderson, of Santa Cruz (at the head of Monterey Bay), sent me specimens from said locality, where he found them at the mouth of a lagoon. These were rather under size. It (*Mya*) was quite likely placed at this last station by some of the "shell-fish" dealers of Santa Cruz. An examination of many of the mounds and shell heaps (kitchen-middens) on the shores of San Francisco Bay and the adjacent region, has as yet failed to reveal a fragment of the shells of *Mya arenaria*, though the remains of *Tapes (Cuneus)*, *Macoma*, *Mytilus*, *Cardium*, &c., are abundant, common, or occasional, in proportions which may be inferred from the order in which I have placed them above.

NATIONAL MUSEUM,  
Washington, D. C., February 7, 1885.

**120.—MEMORANDUM ON WATER RESIDUES FROM COD-HATCHING STATION AT WOOD'S HOLL.**

**By Dr. J. H. KIDDER.**

The residues were received December 5, 1884.

A. "From receiving-tank in hatching-room," about 1 liter of water, copious black, ropy, and flocculent residue; supernatant liquid, yellowish milky. Mixture has decomposed by standing, with development of a bulky black fungus. No sulphureted hydrogen.

B. "From one of the apparatuses in which eggs are placed" about 4 ounces heavy reddish-yellow sediment; supernatant liquid, clear.

Partial analysis of the dried residue results as follows:

	Per cent.
A. Blackens on ignition (organic and volatile matters) and losses.....	17.74
Incombustible residue (red powder) .....	82.26
Total .....	100.00
B. Blackens on ignition and losses.....	24.214
Incombustible residue (red powder) .....	75.786
Total .....	100.000

The loss on ignition is mostly organic matter.

Of inorganic constituents there have been detected: Chlorine, sulphuric acid, calcium, magnesium, silica, alumina (clay), and sesquioxide of iron; the last three named constituting the greater part of the incombustible residue.

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