

**JOHN FITCH'S STEAMBOAT EXPERIMENT ON COLLECT POND.\***

The population of New York city had nearly doubled in the ten years since 1786. Streets had been laid out, and habitations erected above the swampy fields in the region of Canal street. But although surveys had been made of the several streets about the Collect, or Fresh Water Pond, they were not graded, nor had building lots been found (for obvious reasons) marketable in that locality. The water of the pond was sixty feet deep, and the marshy ground to the northwest, as well as toward the East River, gave little signs of promise as to future value.

This beautiful pond, occupying the site of the present great gloomy pile of prison buildings known as the Tombs, was the scene, in the summer of 1796, of the trial of a boat propelled by steam. It was the invention of John Fitch. The boat was 18 feet in length and 6 feet beam, with square stern, round bows, and seats. The boiler was a ten or twelve gallon iron pot.

The little craft passed round the pond several times, and was believed capable of making six miles an hour.

The spectacle was watched

with critical interest by Chancellor Livingston, Nicholas Roosevelt, John Stevens, and others, who had in common with philosophers and inventors in England and Europe been for some time engaged in the speculative study of the steam engine and its prospective uses.† Fitch belonged to the prominent Connecticut family of that name, was born in the famous old town of Windsor, adjoining Hartford, and had been inventing and experimenting for a dozen or more years, hoping to succeed in the application of steam power to navigation. His genius, idiosyncrasies, and impecuniosity were in perpetual conflict; otherwise he might have achieved the triumph to which he aspired. He was a man of striking figure, six feet two inches in height, erect and full, his head slightly bald but not gray, although fifty-three years of age, and dignified and distant in his general behavior.

**LEECH FARMING.**  
BY A. W. ROBERTS.

All leeches are not aquatic. In Ceylon there exists a small variety of leech that attaches itself to the brush and stones which it resembles in color. Here they hang on, in wait for any passing traveler, constantly reaching forth with their distended bodies in all directions, so great is their anxiety to attach themselves to any living animal. Hoffmeister, when collecting on the Island of Ceylon, discovered that his legs were covered with streaks of blood which flowed from hundreds of minute wounds produced by the bites of a terrestrial leech, *Hirudo ceylonica*. This same leech is found on the Himalaya Mountains, eleven thousand feet above the level of the sea. Several varieties of land leeches also exist in Japan, Chili, and Brazil.

Leeches drink the blood of their victims, and when gorged to the very lips fall off, and do not partake of food again for many weeks.

Leeches do not undergo any trans-

formations of form, but are developed directly from the egg as perfect leeches. The perfection of the organization of the leech is always in proportion to that of the natural "host" or victim on which they prey, as, for instance, our mollusks afford safe harbor and food to various marine leeches which are much lower in development than those found on fishes, reptiles, and mammals.

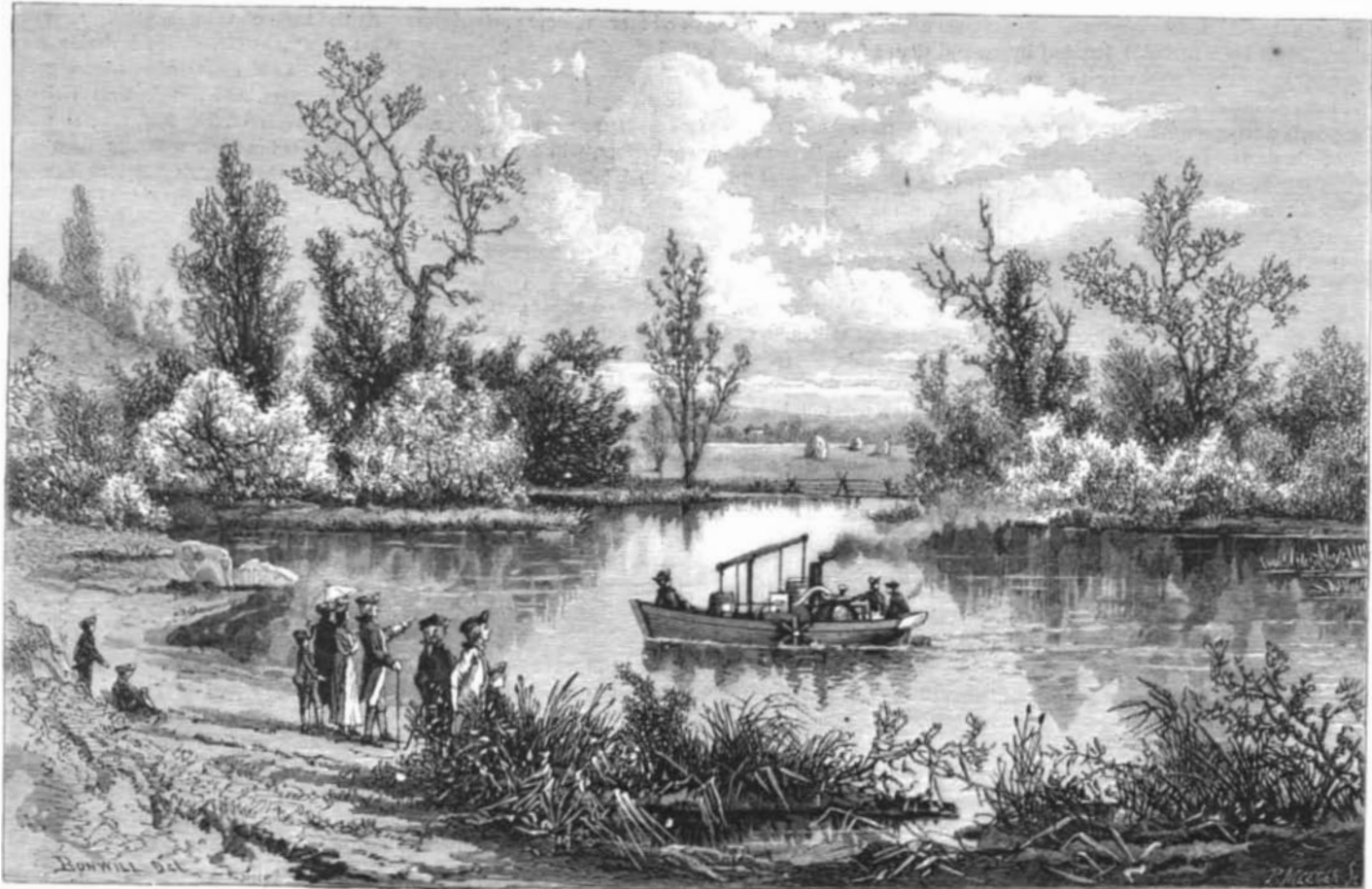
Some time ago, being anxious to obtain specimens of a leech common in our hard clams, I applied to the "opener" of one of the most fashionable oyster and clam saloons of

of these *Malacodermæ* alive, and being of an inquiring mind I determined to have a mess of them cooked, and am forced to admit that they were very nice, very palatable, and of the most desirable Little Neck clam flavor, from which highly prized brand of clams they were taken.

The Chinese eat both marine and fresh-water leeches.

That the leech is very sensitive to all atmospheric changes is proven beyond doubt, and the idea of utilizing this little creature as a sort of barometer is not new. The best leech storm-glass consists of a tall candy jar with tin top, in which

perforations are made; at the bottom of the jar a flooring of peat with two or three smooth stones is placed; the jar is then filled with soft water, into which, after it has settled and become quite clear, two or three of the medicinal leeches are placed; great care must be taken in summer time to keep the temperature of the water down by placing the jar in a cool and shady situation, as heat is fatal to leeches. When the weather continues serene and beautiful, the leeches remain motionless at the bottom. On the approach of a rain or snow storm the leeches will be found at the top of the water, where they will remain

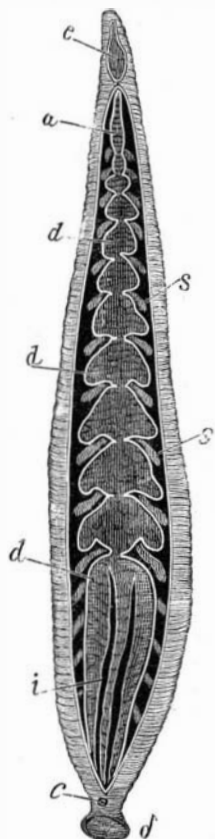


JOHN FITCH'S STEAMBOAT EXPERIMENT ON COLLECT POND NEW YORK CITY 1796.

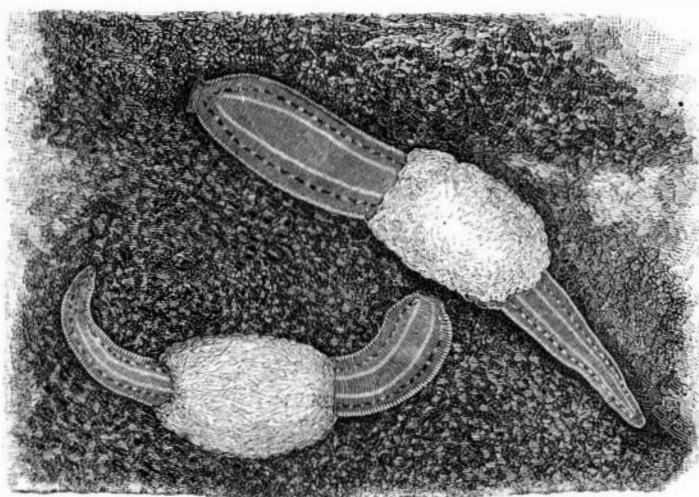
with him. Calling, after the expiration of two weeks, I was surprised to find not a single leech saved, but was smilingly referred to the proprietor, who, I found, had given instructions not to save any for me, as he feared I was one of those newspaper "sketchists," working up a sensational article on hard clam trichinae. These clam leeches are flat, an inch in length, and a quarter of an inch in breadth, and are attached to the outer wall of the stomach of the clam, which they resemble in color. Having great friendship for the hard clam, I must have swallowed alive many hundreds

till the weather becomes settled. When a wind storm is approaching the leeches will gallop about with great liveliness, seldom resting until the wind becomes violent. When a thunderstorm is approaching the leeches will seek a lodgment above water, displaying great uneasiness, and moving in convulsive-like threads. In clear frosts, as in dry weather, the leeches remain constantly at the bottom. The water must be changed every two weeks. The leeches are fed twice a year on blood tied in a thin linen bag, or on a living frog. The best leeches in the market are Russian and Swedish, and are of a dark brown color. The Hungarian leech is green in color, with yellow stripes, closely resembling our horse leech. In Pennsylvania a native leech has been used to some extent among the Germans, but it is found to be very unreliable when taken out of water and applied, dropping off the patient when only half gorged, but when covered with water will gorge to its full extent. I believe that this is the only instance known of utilizing our native leeches. The German and French governments were the first to offer large premiums for the encouragement of leech culture, but many years elapsed until a French fisherman, named Berchade, met with entire success, and at the same time accumulated quite a fortune, as leeches were at that time in great demand and brought high prices.

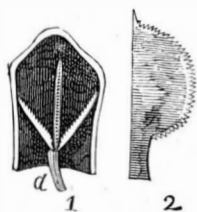
In 1841 a Mr. H. Witte established a small leech farm in Kent avenue, Williamsburg, L. I. In course of time this small establishment was abandoned, and one of thirteen acres was established near Newtown, L. I., and to him I am indebted for the following information and description of the only leech farm in America. The breeding ponds consist of oblong squares of one and a half acres each. The bottoms of these ponds are of clay, the margins of peat. In June the leeches begin forming their cocoons on the peat margins of the pond. These so called cocoons are very curious objects, consisting of a frothy mass of gelatin material of the size shown in the illustration. Through this mass the leech introduces his body and deposits the eggs. After the eggs are deposited the open ends of the



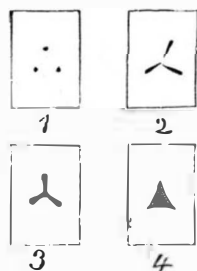
Leech in section—c, anus; a, posterior sucker; s, glands of the skin; i, intestine; a, oesophagus; d, d, stomach; e, anterior sucker.



Leeches depositing eggs in cocoons, in section of peat.



1. Jaw of a leech.—2. Jaw magnified.



Different forms of the bite of a leech.



Cocoon of leech closed.

\* By permission from the "History of New York," by Mrs. Martha J. Lamb. A. S. Barnes & Co., publishers: New York and Chicago.

† The statement that Robert Fulton was present at this trial of Fitch's steamboat on the Collect, in 1796, is an error, he being in England at that date, thoroughly absorbed in the study of Watt's steam engine and canals; he that year published in London a treatise on the improvement

of canal navigation, with numerous well executed plates from designs of his own. He also about the same time, in England, patented a mill for sawing marble, for which he received the thanks of the British Society for the Promotion of Arts and Commerce and an honorary medal. In 1797 he passed over to Paris, with the intention of bringing to the notice of the French Government a submarine torpedo and torpedo boat.

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