

The Hudson River Steamboats.

The Mississippi River has given its name to a class of boats well known on all the Western waters from Pittsburgh to New Orleans. They are simply a shallow boat or scow on which are erected successive stories of saloons. Many of them are magnificent in their fittings and appointments, and all of them are convenient and comfortable. So at the East we have a class of boats deriving their distinctive name from the Hudson or North River. They are stanch, elegant in decoration, and some of them immense in size. Among the finest may be mentioned the *Dean Richmond*, the subject of the engraving—which is from a drawing by the artist Bonwill—the *St. John*, and the *Drew*. Our engraving gives a very correct view of the *Richmond*, and will convey to our country readers an accurate idea of the appearance of

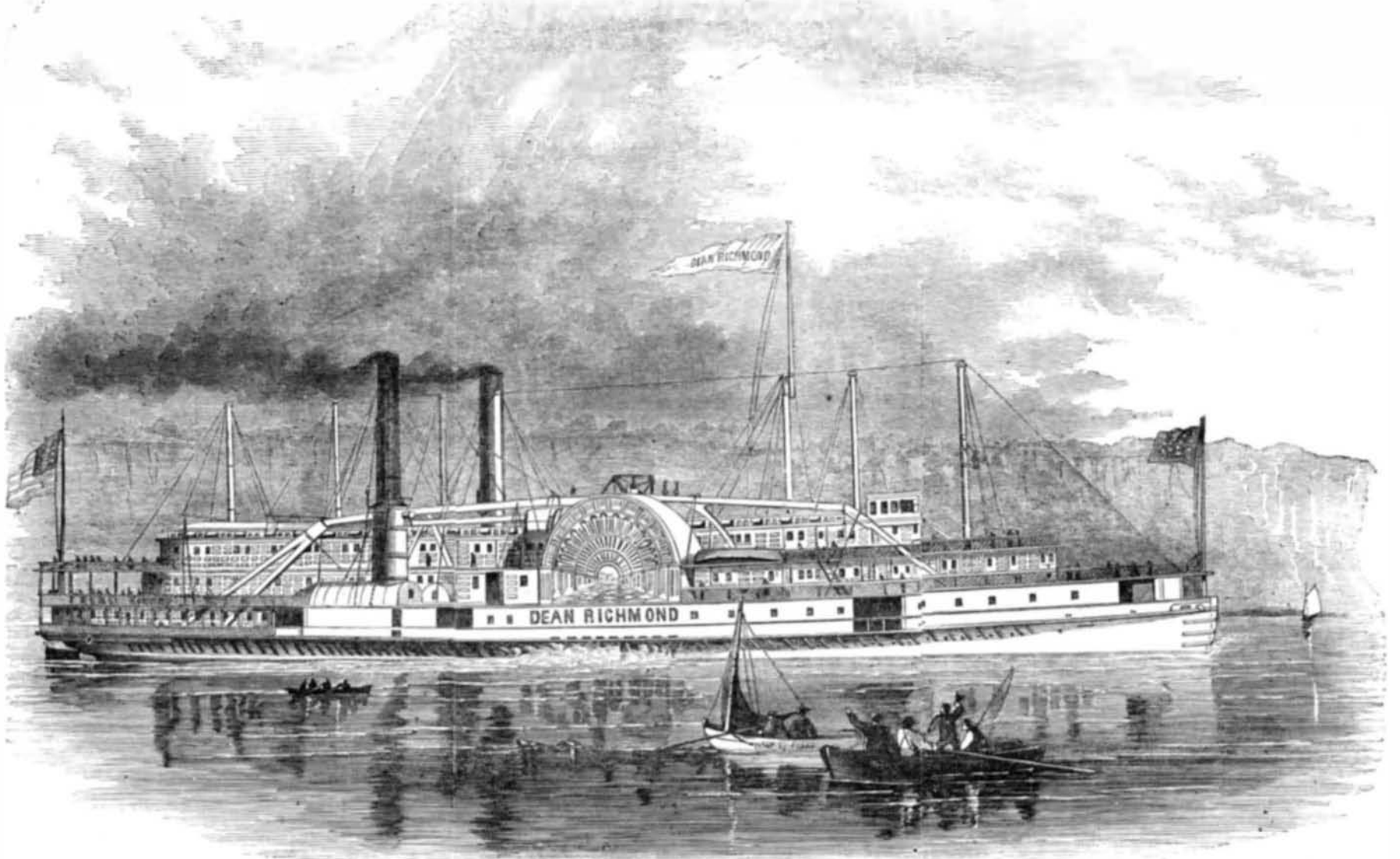
proboscis, thus likening the delicate musketo to the monstrous elephant, a little far fetched?

The musketo is the most musical of all animals. There is no bird which sings so much. He never tires of his simple song. How happy must he be, cheerily singing even far into the night! What a volume of melody from so slight a creature! if man had a voice as loud proportionate to his weight, he might hold a conversation across the Atlantic, and there would be no need of the telegraph. Linnæus, out of compliment to the musical powers of the musketo, named him *Culex Pipiens*. But there are those who say that the musketo has no vocal organs, and that his notes are not music, but the sounds produced by the flapping of his wings, or by some other similar and purely mechanical movement. Have these detractors music in their souls?

of the form of the musketo may be seen through the transparent skin of the tumbler. Shortly the prisoner escapes from his confinement as a full-fledged and bold musketo, and soars away in search of food and pleasure.

HOW MARL IS MINED IN NEW JERSEY.

The Squankum Marl Company has located its machinery for digging and hauling marl on a little stream about a mile from Lower Squankum. The whole of the ground they operate upon is laid under water. They have a large steam dredging machine, which will float in two feet of water, and will excavate to a depth of twenty-six feet beneath the surface, and to a breadth of forty feet at the surface of the water, and will discharge the material excavated at a height of twelve feet above the water. A branch railroad connects with the



THE STEAMER "DEAN RICHMOND."

one of these river palaces. This boat plies between New York and Albany. She belongs to the People's Line, and cost \$700,000. She has accommodations for 900 first-class and 600 second-class passengers. Her internal arrangements are of the best possible style, neither labor nor money being spared in her fitting up.

By means of these boats the poorest can have an opportunity of experiencing the delights of a trip on the most beautiful river of the country, and at the same time of enjoying the luxuries of a first-class hotel. Such vessels have done much to familiarize our people with the elegancies of life and to make them cosmopolitan in ideas and refined in tastes.

Science Familiarly Illustrated.

Musketoos—What They Are and How They Live

It is unscientific to say that musketoos bite, for they have no teeth; and they have no need of teeth to seize upon or prepare their food, for they are dainty, and take food only in the liquid form—spoon victuals. They are a chivalric race, and attack their enemies with a sort of sword or lance; no doubt they consider biting and gouging quite vulgar. The lance of the musketo is a very beautiful and perfect piece of work; it is smoother than burnished steel, and its point is so fine and perfect that the most powerful microscope does not discover a flaw in it. As the most delicate cambric needle is to a crowbar, so is the musketo's lance to the best Damascus blade. The lance is worn in a scabbard or sheath, which in every respect is worthy of it; it is often ornamented with plumes. Man carries his sword at his side, and the musketo on his head. The latter arrangement has manifest and wonderful advantages—the weapon is always *en garde*, and does not impede locomotion by getting entangled with the legs.

The lance and its sheath being on the head and being somewhat flexible, is often called a proboscis. This view of the case is strengthened by the fact that the scabbard is a suction pipe through which the musketo drinks its food. As Moses struck the rock with his staff, so the musketo with a thrust of his lance pierces the fountain, and the nectar, gushing into the scabbard, finds its way to the more sensitive and vital parts. But is not this calling the lance and scabbard a

The musketo might be classed among our domestic animals, may we not say among the household pets? They are the almost constant companions of man in town and country during the holiday season of the summer. No home without the musketo. What affection! How they stick to us, closer than brothers! They often come a great way—hundreds of miles—to be with us. Most of those which greet us in this city have left their distant homes in Jersey and have made the perilous journey across a wide river. They also love their own society and travel in companies which sometimes comprise millions of individuals—in swarms which obscure the sun. But the common-place detractors say that musketoos are bred in unwholesome swamps, and that it is only the wind which bears them, as it does feathers and malaria, wherever it listeth.

Let us inquire about the earliest beginning of the musketo; let us take him in the egg. The mother musketo has notions of naval architecture, and out of the eggs she lays she constructs a well-modeled boat, with elevated prow and stern and well proportioned midship. For the boat she employs 250 to 350 eggs, building it up piecemeal, somewhat after the manner of men, binding together the individual eggs by means of a powerful water-proof cement, into a substantial and complete structure. Unfortunately we are unable to give a recipe for the water-proof cement; there are many who would like to have it. The boat is built on the water, and when completed she is confidently abandoned to the mercy of the wind and the wave. Thanks to that water-proof cement, she can neither be broken, wetted, or sunk; she is safer than if she were copper bottomed. The little craft, it must be remembered, is freighted with life—each of its 250 or 350 little state rooms has its tenant. After a few days cruising the occupants of the shells come forth, and the ship is destroyed. But those little creatures are surely not musketoos! They appear more like fish or serpents, or little dragons. On closer examination they prove to be what every one knows under the name of "wrigglers;" they are the larvæ of the musketo. They wiggle about in the well-known way for a week or two, and after changing their skins two or three times, they assume quite a new form and movement. They are now what the boys call "tumblers," and are the *pupæ* of the musketo. In about a week, if the weather, etc., be favorable, something

Raritan and Delaware Bay Railroad at Lower Squankum. The track from this branch is laid along the margin of the pond, and the cars are brought up to be loaded directly from the excavator. In this way the water is to be made useful instead of being a hindrance. The machine is floated to the place where it is required, it is then set to work removing the top dirt, in the present work six feet deep, which is deposited in a bank along the margin of the pond. The track can then be brought up and the marl dug and dumped in the cars to be carried away. The work is very rapid, a tun of marl can be dug in a minute, and so powerful is the excavator that it gouges out the marl and deposits it in the cars as solid and almost as dry as when in the marl bed. Should this plan in its workings equal the expectations of its projectors, it will be a great advance on other methods in use. The machine, which costs about \$10,000, is driven by a sixteen-horse engine, is operated by four men, and burns a cord of wood a day. When all is arranged, it digs about a tun per minute, and can probably do half of that for the day through, which would be three hundred tons deposited in the cars in ten hours. An allowance must be made from this for the stripping, which may amount to from a quarter to a third as much as the extraction of the marl. The excavator is in successful operation, and can dig from six to eight thousand bushels (300 to 400 tons) a day. Two locomotives and twenty cars are constantly employed in the delivery of marl, which is unloaded at any point on the line of the Raritan and Delaware Bay Railroad, or on boats at Port Monmouth, at 8 cents a bushel, or \$1 60 a tun.

The following are analyses of the New Jersey marls from three principal beds:

Phosphoric Acid.....	1.12	2.65	3.73
Potash.....	5.80	6.81	4.98
Lime.....	11.67	1.04	4.15
Magnesia.....	1.97	1.81	.47
Oxide of Iron.....	16.93	19.80	18.70
Alumina.....	7.18	8.04	8.18
Silica.....	40.61	49.73	49.68
Sulphuric Acid.....	.70	.11	2.44
Water.....	8.10	8.34	7.37
Carbonic Acid and Loss.....	5.92
	100.00	98.33	99.70

We are indebted to Prof. George H. Cook, State Geologist of New Jersey for copies of his reports from which we take the above.