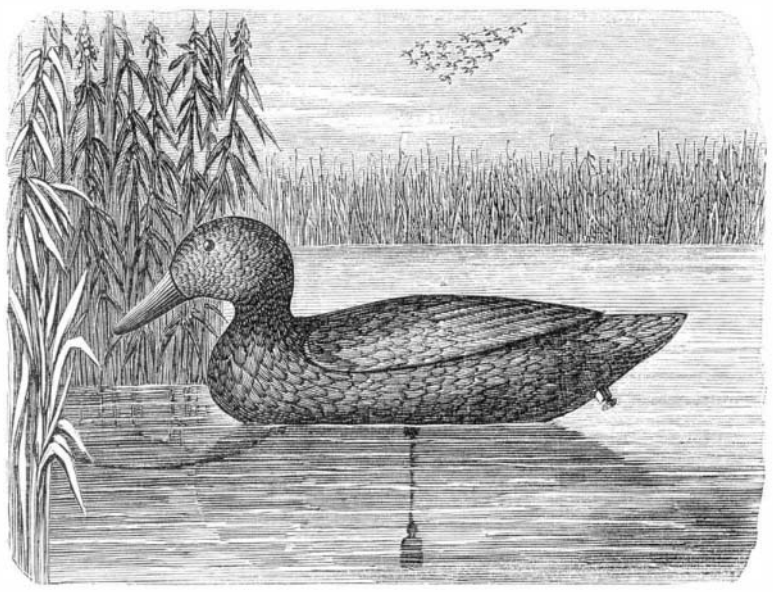
FOSTER'S INDIA-RUBBER DECOY DUCK.

This is a rubber duck of full size, and accurately formed. When not in use it can be collapsed by allowing the air which distends it to escape through a valve provided for that purpose and through which it is also inflated when it is wanted for use.

A ballast weight is fixed to the center of the belly. The resemblance to a real duck is very striking. Sportsmen will appreciate this invention, and the convenience afforded by the



portability of these decoys over the old cumbersome wooden ducks. A dozen may be packed so as not occupy more space than a single wooden one.

Patented August 3, 1869, by Jacob Foster, who may be addressed for further information, 328 Colowhill street, Philadelphia, Pa.

DIFFICULTIES TO BE SURMOUNTED IN WORKING THE SUEZ CANAL.

We find in *Lippincott's Magazine*, a paper from the pen of Edward B. Grubb, relating "what he saw of the Suez Canal during a trip from Timsah to Port Said last winter. In this article we find set forth some of the difficulties to be surmounted in the navigation of this canal, which though possibly not insuperable, must more or less obstruct trade for some time to come. We make some extracts from this interesting narrative particularly bearing upon this subject:

"Where the canal enters Timsah from the north the cuttings are deep, and the great heaps of sand lie on either side sixty or seventy feet high. The channel through which the water runs is not one hundred feet wide and the depth not over twelve feet. Hydraulic engines of enormous power were at work dredging up and pouring out immense volumes of mud and sand. Hundreds of men, mostly Arabs, with barrow, pick, and shovel, were moving the huge heaps, or waist-deep in the water, turning from our path their uncouth boats; for much traffic is even now done upon the canal, and besides the boat-loads of stores and provisions belonging to the company, we saw many a cargo that reminded us of the sutlers' stores in the 'Army of the Potomac.'

"The Timsah cutting extends for perhaps half a mile, and then the desert is scarcely above the level of the water, and in fact in many places it is below it, so that the water covers many hundreds of acres, and the course of the canal is buoyed out sometimes for nearly a mile. As we left the hills of Timsah the wind struck us sharply, and ever and anon a quantity of the light sand of the desert would be caught up by it and sent whirling into the water; and looking closely, we could see where it had drifted little capes and promontories into the canal. Let us repeat what our captain said upon this subject, being asked:

"'Yes, monsieur, this drifting in of the sand certainly seems to be one of our greatest difficulties, for the wind blows across the canal all the year round—six months one way, six months back. One ounce of sand per square yard amounts to five hundred tuns for the whole canal. If it came in at that rate, it would be a long time before the company would pay any dividend. But we do not intend to let it come in; and this is how we prevent it. This sand only extends to the depth of from nine to twelve feet; below this is a stratum of blue mud, mixed with a sort of clay, in which, by the way, we find great quantities of beautiful shells and fossil fish. Well, then, do you see those two huge engines which we are approaching—one an hydraulic dredger in the middle of the canal, the other an iron *shute* (it looked like the walking beam of an immense steamer), near the edge? Do you see how the vast masses of sand, mud, and water, come up from the dredger, are poured out into the "shute," and thence on the ground sixty or eighty feet from the edge of the canal? Do you see how quickly the great heaps rise, and how they extend, almost without a break, all along? Well, monsieur, you would find these heaps almost immediately baked hard by the sun, and as they are firm enough to bear the railroad we intend putting upon them the better to expedite the mails from India, so we hope they will be high enough to keep out the sand drifts from the canal.

"And what are your other great difficulties, mon captaine?"

"Well, monsieur, at Chalouf, near Serapéum, we have struck a peculiar hard stone at the depth of twelve feet, and are obliged to blast to clear it out (it is axolite). Then the deposit of the Nile mud near Port Said will always keep us dredging. But what we fear most is the Red Sea. For a long distance from Suez it is extremely shallow; then, lower down, it is very rocky; and while this is nothing to steamers, which can easily keep the narrow channel, yet with the wind blowing six months one way and six months the other, it will not be easy for a heavily-laden clipper to keep off the ground. Yet these things will all be set right, for trade will take the shortest route, and the Suez Canal will be a success, although no nation now believes it except France, and (with a bow) America.'

"A few words now upon the canal in general. Whether or not the idea originated with Pharaoh, Napoleon I. acted upon it, and actually had a survey made, when it was reported that there was a difference of thirty feet in the level of the two seas; and for that and other reasons the project was abandoned, and lay dormant until about 1854; upon the 30th of November of which year the contract between the Egyptian government and "Compagnie Universelle du Canal Maritime de Suez" was signed. Its duration is ninety-nine years from the day of the opening of the canal for traffic. The Egyptian government is to receive fifteen per cent of the net profits, and holds a large proportion of the company's bonds. Egypt conceded to the company all the lands which might be irrigated by the fresh-water canal, and in 1868 bought back its own concession for a sum equal to ten millions of dollars.

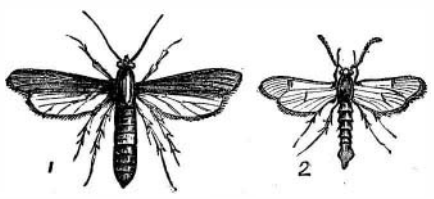
"Kantara is thirty-one miles from Port Said, and the canal is almost perfected thus far; that is to say, although the dredges are still at work, yet for this distance the canal is one hundred yards wide and of an average depth of twenty-six feet; and these are to be the dimensions for its entire length. A curious feature, which is visible along the narrow parts of the canal, is a current flowing in from the north at the rate of one and a half knots per hour. Although it is many months since the water attained its level, yet this current still continues. Our captain attributed it to evaporation and absorption. It must be remembered that all the cuttings have been from the Mediterranean towards Suez, and that the main body of the men employed, numbering eighty-five hundred, are working at the head of the canal, which is now advanced as far as Serapéum. Here it is necessary to cut through a number of sand hills to the Bitter Lakes, which are a series of depressions in the desert, in the lowest parts of which are marshy ponds. They are twenty-five miles in extent, and it is expected that, when the water is let in, an area of one hundred and forty thousand acres will be covered. (This has since been done). Then comes the Chalouf cutting to Suez, sixteen miles, and the seas meet.

"On the 1st of January, 1869, there were at work eighty-five hundred men. These men are obliged by the Egyptian government to work on the canal, but are paid by the company at the rate of two francs per day. The engines for dredging are sixty in number. Each cost two hundred thousand dollars in gold. The expenses amount to one million dollars in gold per month, and the work has already absorbed forty millions of dollars. It is said that the rates of toll are to be ten francs per tun. The company is a private one, and has not been publicly recognized or assisted by the French government.

"With regard to the rocks, the calms, and the tortuous channels of the Red Sea, mentioned before as the chief obstacle to the use of the canal by the larger class of merchantmen, plans have already been elaborated in England, with a view to the building of a class of vessels suited to this trade, and carrying each sufficient steam power to assist her through the canal and down the Red Sea. For the dispatch of mails and the transport of troops, this route will be immediately available; and although it will take time to conquer English prejudices and predilections, yet in time the bulk of the India trade must come this way."

THE PEACH TREE INSECT.

The "Peach Borer" is becoming extinct in many parts of the West, and the peach trees are beginning to thrive again. Mounding up the trees with earth has been long practiced, as a preventive against the borer worm; but writers in the *Entomologist* say it does no good. Peach orchards, where hogs are allowed to run, seem to be kept free from the insect. Lime and ashes are of no value.

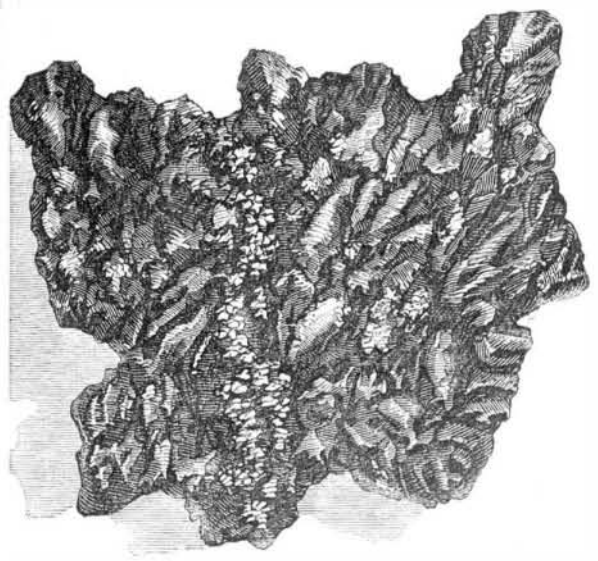


The above illustration shows the moths of the borer. Fig. 1 is the female; Fig. 2, the male.

ARTIFICIAL stone is made by mixing sand with a concentrated solution of silicate of soda. The pasty mass thus formed is placed in the mold of the desired shape. It is then dried, but is yet as brittle as biscuit. It is next saturated with a solution of chloride of calcium. In about an hour the chemical change takes place, and the whole mass becomes as hard as stone; finally, it is washed and dried.—*S. Piesse.*

"THE WELCOME STRANGER" NUGGET, FOUND NEAR DUNOLLY, IN AUSTRALIA.

Attention has been already directed to the many large pieces of gold which have been found in the neighborhood of Dunolly; and, when the printing of this work was nearly completed, on the 5th February, 1869, there was unearthed by John Deason and Richard Oates a nugget weighing more than 2,280 oz., 10 dwts., 14 grs. It was found on the extreme margin of a patch of auriferous alluvium trending from Bulldog Reef. According to information furnished by Mr. Knox



Orme, it appears that this mass of gold was lying within two feet of the bed-rock (sandstone), in a loose, gravelly loam, resting on stiff, red clay. It was barely covered with earth. It was about twenty-one inches in length and about ten inches in thickness; and, though mixed with quartz, the great body of it was solid gold. The annexed engraving has been reduced from a large sketch made by Mr. Francis Fearn, which was certified by the discoverers as a fair representation of the nugget found by them. Comparing it with a photograph of a sketch made from memory by Mr. Charles Webber, it would appear to represent not incorrectly the outward appearance of the "Welcome Stranger."

It is to be regretted that a cast or a photograph was not made, and the weight and specific gravity of it ascertained when it was first dug out of the ground. The discoverers appear to have heated it in the fire in their hut, in order to get rid of the quartz, and thus to reduce its weight before conveying it to the bank at Dunolly.

The melted gold obtained from it was 2,268 ozs., 10 dwts., 14 grs., but a number of specimens and pieces of gold (weighing more than 1 lb.) were detached from it before it got into the hands of the bank manager; and what was broken off in the hut while it was on the fire, it is useless to guess.

Mr. Birkmyre says: "The gold of this nugget, from the crucible assays, I found to be 98·66 per cent of pure gold. It thus contains only 1-75th of alloy, composed chiefly of silver and iron. The melted gold, with that given away to their friends by the fortunate finders, amounted to 2,280 ozs., or 2,248 ozs. of pure gold—its value at the Bank of England being £9,534."

The neighborhood of Dunolly is almost unprospected country. For many miles there are out-cropping reefs which have yielded very large pieces of gold: and it is not at all improbable that other pieces of gold will be found as far exceeding the "Welcome Stranger" in weight and value as that nugget exceeds any yet recorded.

Near the spot where this mass was found there were unearthed two nuggets weighing respectively 114 ozs. and 36 ozs. Very heavy gold is characteristic of this district; and large nuggets are found nearly every day.—*From R. Brough Smyth's "Gold Fields and Mineral Districts of Victoria."*

THE HOLSTEIN INTERMARITIME CANAL.

EARLY ATTEMPTS FOR DIRECT INTERMARITIME COMMUNICATION.

The idea of constructing ship canals across narrow strips of land, for promoting commerce, is not new. From a work of Antonio Galvao, entitled *"Tratado dos Descubrimentos,"* we note the fact that the opening of a ship canal between the Atlantic and Pacific Oceans—"the mightiest event, probably, in favor of the peaceful intercourse of nations which the physical circumstances of the globe present to the enterprise of man"—was proposed to Charles the Fifth in 1528. And, strange as it may seem, the inquiries, instituted at that time, led to the recommendation of the same lines that were planned in 1825. Still older is the project of the opening of ship canal across the Isthmus of Corinth in the Mediterranean. It engaged the attention of Periander, Demetrius, Julius Cæsar, Caligula, Herodes, and Atticus, but it was reserved for Nero to take the first active step toward the accomplishment of this end. He completed a canal half way, as lately ascertained by the explorations of the learned Frenchman, Mons. Grimaud de Caux. This isthmus connects the peninsula of Morea with the province of Attica, in Greece. By means of a canal cutting through this narrow strip of land, the route from the Ionian Sea to the Archipelago would be considerably shortened. Such a canal would be of great importance, as enormous quantities of grain are exported from the borders of the Black Sea to the seaports of the Adriatic.

The project of uniting the Baltic with the North Sea by a navigable ship canal dates from the zenith of Lubeck's commercial prosperity, and was suggested first as early as