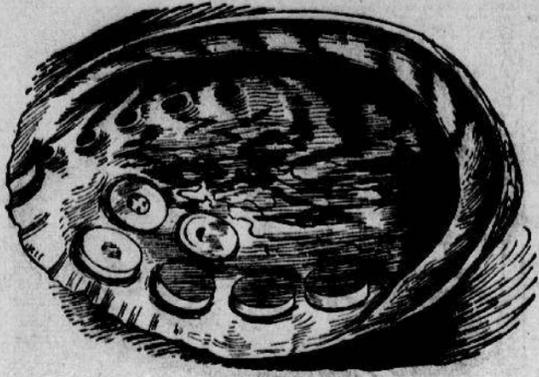


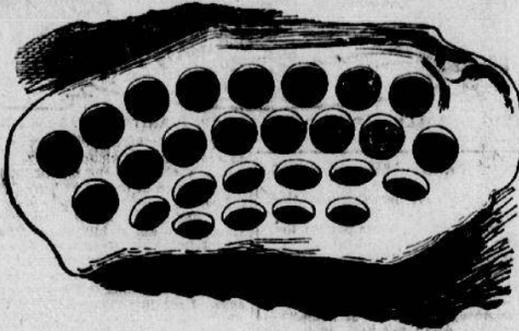
HOW PEARL BUTTONS are MADE



A GREEN ABALONE SHELL FROM PACIFIC OCEAN.

It fills one with amazement to study the art of mankind, and see what an enormous variety of things of every description have been fashioned by the hand of savage and civilized man! What a great variety and multitude of tools he has made to aid him in his various arts and sciences! Is there any substance known to him that his genius and inventive skill have not found some use for?

fresh water shells, suitable for the manufacture of many useful as well as beautiful articles, only two large groups of shell fish are sought, and these are the pearl oyster and pearl mussel species, which produce that most prized material known as "mother-of-pearl," and also, those gems of the ocean—orient pearls. Some species of these shells are small, and as their "macro," or mother-of-



A PEARL MUSSEL, FRESH-WATER SHELL, FROM WHICH BUTTONS HAVE BEEN CUT.

How many of the useful everyday things of life we handle daily, and as they serve our purpose we give no further thought to them. Have we ever stopped to admire even the beautiful, iridescent, pink, greenish and pearly colors on the handle of our little pocket knife, much less imagined how such a beautiful part of one of the gems of the ocean ever got there, for those who love "pretty things?"

pearl substance, is thin, they are of little value to the manufacturer of pearl ornaments, buttons, etc. The Ceylon pearl oyster is of this small variety and is eagerly hunted for on account of the pearls which are somewhat plentiful and sometimes of the very finest quality. You have all heard of the Ceylon pearl divers of that spicy isle who derive a livelihood from their dangerous but wonderful occupation of diving for pearls. Those expert swimmers and divers go down

In the beautifully clear waters of the Indian Ocean to a depth of from six to twenty fathoms in quest of those beautiful gems of pearl, which we have all admired so much as they graced the necklaces of some person who was fortunate enough to possess such an attraction.

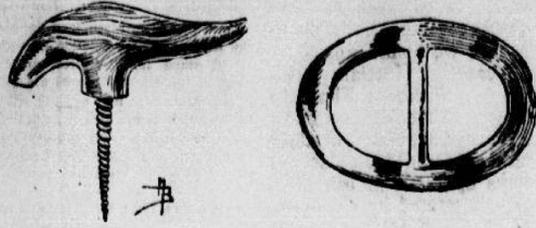
If it is true, as so often stated, that "small packages contain valuable prizes," the application is well suited in the case of these valuable shells seeing the small ones contain the rarest and most beautiful ocean gems, while the much larger members of the pearl oyster family supply far more of the mother-of-pearl substance, so useful in the manufacture of a variety of things.

The largest and finest of these pearly oyster shells are found in the tropical water of the Australian seas, where they are fished for and brought to the surface by the human hand, while in more shallow places they may be secured with various hook lines or tongs made for the purpose. Their pursuit has been so extensive in the past, however, that very few of the large and valuable specimens remain within easy reach. A single pair of these Bivalves when full grown may weigh from twelve to eighteen pounds or more, and will in these days be found only in waters of almost inaccessible depths. The great natural beds or banks of the pearl oyster and pearl mussel shells are much like those of our much-sought-for oyster, but are now far less accessible in the places where man's tireless industry has been for so long working overtime.

After cleansing and when properly prepared for shipment, quantities of these shell treasures are sent to Germany, where the most extensive work of manufacturing articles from them is carried on, while some are sent to France from a few of her possessions in tropical seas, to be made into articles of ornament, or sent into Germany in the rough state, to supply the German trade with raw material.

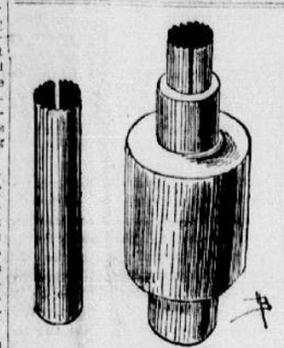
On reaching their destination in Germany, these shells undergo several preliminary operations, such as re-washing, scouring and soaking in chemicals, before they are ready for use in the manufacture of buttons, or other useful articles. These beautiful shells of the pearl oyster are perfectly suited to the manufacture of various useful articles for the following reasons, viz: They supply an abundance of the mother-of-pearl substance which is very thick, and not brittle enough to split up in the process of cutting, and their beautiful coloring is not only very rich, but permanent.

One of the illustrations showing an opened view of a pearl oyster taken



UMBRELLA HANDLE AND BUCKLE CUT FROM SHELLS

squares lower down are for decorations for musical instruments. From the narrow divisions near the hinge are to be cut a penholder and paper cutter, while pocket knife handles are outlined near by, just above the outline for a fine pistol handle of "pearl." It will be noticed that the outside rough surfaces of the shell encroach upon some of these designs near the bottom but the depth of these parts allows all these irregular-



ONE SAW IN HOLDER AND ONE OUTSIDE.

ties to be cut away for the finishing of the perfected article.

Another illustration shows some cloak and vest buttons and shirt studs of mother-of-pearl, placed back in the holes in the mother-of-pearl shell from which they were originally taken. Buttons may be cut from shells with curved surfaces, as in the case of the beautiful iridescent green, abalone shell from the Pacific, shown herewith. From the surfaces of such shells as the pearly nautilus, the

above referred to. His principal inquiries were made at Muscatine, Iowa, that being the center of the business, and from his extensive report on the subject is taken the information herewith presented on the native fresh-water mussels.

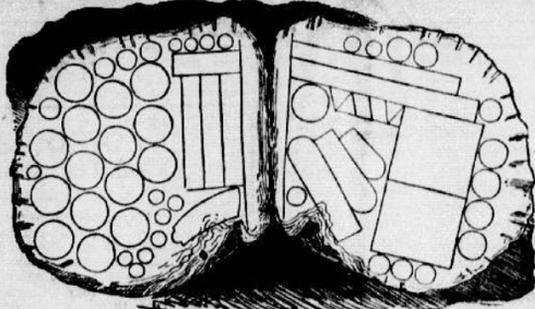
The principal species of mussel used for the button making, which is found in the Mississippi river, is called the "niggerhead." Its general shape is round like a clam and it has a very dark brown or black shell of remarkable thickness, while its interior surfaces are of a glistening white, which permeates through to the outer skin of the shell.

This shell possesses the peculiar characteristics required for the manufacture of buttons, as it is sufficiently thick, substantial, and of a general uniform coloring throughout the various strata of which it is composed. It is not a large shell, being one from four and one-half to five inches across its greatest diameter. It is found over very extensive areas, and hundreds of fishermen spend their time in taking these shells with tongs, hooked lines, etc. One company takes them in wholesale by aid of a steam dredge especially fitted for the purpose. Some other valuable varieties are known to the fishermen and manufacturers as the "deershorn" or "buckhorn," the "butterfly" and the "pearl-mussel."

Dr. Smith reports that in 1896 there was a bed of "niggerheads" and "muskets" in front of Muscatine, Iowa, about two miles long and one-fourth of a mile wide, which yielded 500 tons of shells. The same investigator states that one man may take from 800 to 1,000 "niggerheads" in a day, and receive about \$20 per week for his catch. Some fishermen provide themselves with houseboats, which they anchor in convenient places, and in these they stay with their families, doing a good business at shell-fishing throughout the season. In the winter the fishing is not interrupted much as the fish may be taken through large holes cut in the ice.

The author above referred to tells us that the enemies of the shellfish are the muskrat, mink and racoon, and the hog, in some parts of the country. Shifting sands, freshets and droughts are very destructive to the mussel beds and polluted water from the refuse of cities is another fatal foe to these bivalves. Thus we see how polluted city water may have an effect upon the price of our collar and cuff buttons. These shellfish are very slow growers and are taken very easily, and the work of catching, hauling, sorting and soaking for several days in fresh water in preparation for use, represents a good deal of time and labor.

One of the illustrations herewith shows a fresh water pearl mussel shell from which a number of "banks" have been cut as if by a cooky-cutter. Not only is it necessary that this operation be performed upon shells which have been kept wet for some time, but during the process of sawing a jet of water is kept playing on them to prevent the formation of shell dust, which would be very troublesome to the eyes and air passages of the workmen. The work of holding the shells in proper position before the saw is quite a task, and some of the workmen use gloves for this, while



PEARL-OYSTER SHELL MARKED OUT ON EACH HALF FOR CUTTING

from the Indian Ocean is marked out with ink lines as a guide for its cutting. This gives an idea of the value of this material, and the skilled economy which is practiced in using every bit of the shell surface possible for manufacture. The two halves of this shell measure about thirteen inches across, horizontally, and are of an exquisite, pearly pink coloring on the inner surfaces where the ink lining is seen. From this diagram you will see what articles are to be cut from the sides of this specimen. The various circles represent marking for buttons of different sizes, while the largest circle on the right side of the shell, near its hinge, is for one end of an opera glass case. Just below this circle you will see markings for a whistle, parasol and table knife handle respectively. At the top of this same part there are markings for a razor and fan handle. The triangles are for inlays in jewelry, and the large

most brilliantly colored ornaments may be cut, while from the "nots" in such and similar shells various other articles are made, such as fancy cane and umbrella handles, buckles, cameos, etc.

Before describing the interesting methods used in the cutting of these shells, we will turn to the more recent manufacture in this country of button making from the fresh-water mussels, which have been found in great quantities in the mussel beds of our Mississippi river and its branches.

The threatened early exhaustion of the mussel beds of the Mississippi river in Iowa and Illinois, led certain interested persons to request the United States fish commission to make an investigation into the matter and in July, 1898, Dr. Hugh M. Smith was assigned to make the investigation, in which year he visited the leading places in the button-manufacturing business along the river

others have pilers for that purpose. These blanks are later evened-up, ground to a regular size and pattern, and finished by polishing. After a few other washing and drying operations they are sewed on cards, packed in small boxes and ready to ship off for sale. The daily capacity of the largest factories is said to be from 700 to 1,000 gross of finished buttons. (All the illustrations for this article were drawn from the objects at the bureau of fisheries, Washington, D. C.) HARRY B. BRADFORD. (Copyrighted by the author.)

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HARDWARE DEPARTMENT

Fishing Tackle



Our Sporting Goods Store with its wonderful array of fishing paraphernalia affords the fisherman, whether a seasoned angler or the varicest novice, the very widest range of choice for the selection of his tackle to tempt the festive trout from the stream to his creel; for instance:

Fishing Rods

Bamboo Fly Rods from 75¢ to \$12.00, and Steel Rods from \$1.50 to \$7.00, with these for leaders:

Our "Bitter Root Special" Bristol Steel Rod No. 38
A rod made especially for us and bought in quantities to enable us to sell it at a moderate price; extra selected split bamboo, 3 joints and extra tip, 9 to 10 feet; snake guides; fancy whipped in two colors of silk, 6 1/2 to 7 1/2-ounce; put up in velvet covered form in a canvas bag; extra \$5.00 value at \$5.50

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A dozen or more kinds, from the lowest-priced single-action hand reel at 15¢ to the fine jeweled bearing multiplying hand reels at \$2.50, and the famous V. & E. and Rochester Automatic reels at \$3.50 to \$5.

Lines

Silk Enameled, 25¢ to \$3.00. Cotton and Linen, 5¢ to 25¢.

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3-foot single and double gut, 5¢ to 25¢.
6-foot single and double gut, 10¢ to 50¢.
9-foot single gut, extra selected stock, each 60¢.
3-foot and 6-foot twisted Gut Leaders, 25¢ to 50¢.
Leader Gut, 2-foot length, extra selected; dozen, 30¢ and 40¢.

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The patterns in which our Fly Hooks are tied are the best for local stream fishing, being the result of careful observation of fish preferences.
"SUPERIOR" FLIES—Silk body, single hook; per dozen, 35¢.
"MONTANA" FLIES—The old reliable, made in all patterns, tied on single and double hooks; per dozen, 75¢ and \$1.00.
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Along with our flies we offer full assortments of plain hooks and baits:

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Treble Hooks, all sizes; dozen, 20¢ to 50¢.
Rubber Grasshoppers, 15¢. White Grubs, 10¢.
Pearl Spinners, Western Baits and Fly Spoons, each, 25¢.
Wooden and Silver Minnows, all sizes; 25¢ to \$1.00.

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Fly Books, 25¢ to \$2.50, with something especially good in the Cooper Fly Book at \$1.00.
Aluminum Tackle Boxes, for leaders, 25¢; for flies, 75¢.
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French Willow Baskets, 20 lb. and 25 lb., leather bound, \$3.50 and \$4.
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K. D. Inside Door Frame 75c
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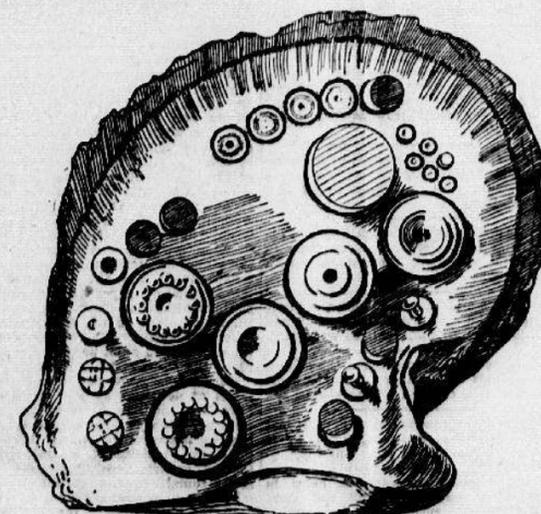
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