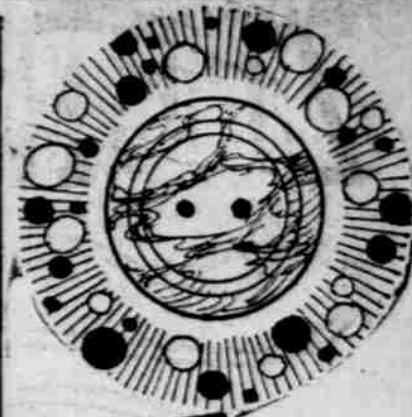
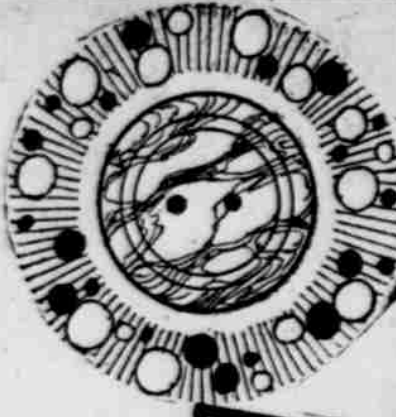


HOW MEN AND MACHINERY MAKE BUTTONS.



SEWING THE COMPLETED BUTTONS ONTO CARDS READY FOR THE MARKET.



OPERATOR PLACING BUTTON BLANKS IN AN AUTOMATIC MACHINE WHICH SHAPES AND FACES THEM AND DRILLS THE HOLES.



A BUTTON IN A HOLDER BEING POLISHED UPON A BUFFING WHEEL.



PREPARING A SALT WATER SHELL TO BE SAWED INTO BUTTON BLANKS.



SALT WATER SHELLS USED IN MAKING PEARL BUTTONS.

HAVE you ever thought of how that little bit of pearl, ivory, brass or wood that holds our garments together distinguishes us from the ancients? Without it tight-fitting clothing would never have been introduced. No other article of which we know today could take the place of what we call a button. Women might succeed in pinning their gowns together but what about the thicker garments of the men? Lacing is all right for a shoe or a vest but wholly impracticable for coats and suits. Hooks and eyes will answer on a dress lining but how would they look on an overcoat? Anyway, hooks and eyes really belong to the button family representing one of the stages in its evolution.

The button is one of the very best examples of the importance of small things. Read it out of existence in all its forms and it would affect our National Life. Compelled to return to the robes of our ancestors, many of the greatest lines of modern industry would be handicapped. Imagine the fireman of a locomotive clad in loose, flowing garments, or the conductor of a crowded trolley car making change in a top.

Dates Back to Elizabeth.

The history of the button industry dates back only to the reign of Elizabeth, which was from 1558 to 1602. Great Britain has been the great button-making center of the world for a long time and Birmingham the seat of manufacture. Buttons grew rapidly in favor not only on account of their usefulness but as ornaments. It became a great fad to adorn one's clothing with beautiful brass buttons so made that a prismatic effect resulted as those light shone upon them. Not only those of high official rank wore beautiful buttons, but the English dukes and tradesmen as well, this fad reaching its zenith in the early part of the 18th century. Then came buttons of metal bearing the designs of animals and these gave place to those of cloth—the invention of an Englishman named Sanders. In 1837, the silk-covered button made its appearance and became at once so popular that 60 looms were kept working overtime to fill the demand. Later linen buttons were introduced for underclothing and then glass buttons in Bohemia, porcelain in France, and composition in Germany.

Our American Production.

Forty-two buttons each for every man, woman and child in the United States represents the annual production of the United States according to a special report on buttons issued by our Government in connection with the 12th census. I am informed, however, that since this report there have been great changes in the making of

buttons in this country and also the annual production has greatly increased. Our buttons in the United States are made from bone, cloth, horn, metals, vegetable ivory, wood, celluloid, paper, pearl and several other materials. Of these pearl buttons hold first place in both value and numbers. Twelve million gross of fresh-water pearl buttons are now being made in this country each year and about one-fifth as many salt-water pearl buttons. Since the last census report the pearl buttons annually produced have nearly doubled.

Fifteen years ago it was discovered that the waters of the Illinois, Indiana, Iowa, Tennessee and Arkansas produced pearl excellently adapted to the making of buttons. Up to that time all pearl buttons made in the United States were from salt-water shells, and the button industry was confined to cities on the Eastern coast. Since the discovery of fresh-water pearl, the industry has spread well into the Central and Western States. Hundreds of shellhunters, busy themselves along the rivers, and factories for the making of button blanks have sprung up on the banks.

The salt-water shells which come into the United States for buttons are brought from the markets of London to which they are shipped from Sydney, Australia, from Bombay and elsewhere. These shells are sold by the pound and their price depends upon their color and cleanness. Some shells from which buttons are sawed weigh five pounds. The Sydney or Australian shell is the best and sells for not less than 4 cents a pound, and the Bombay shell for perhaps 25 cents a pound. The Sydney shell is nearly all white, while the Bombay shell may be white only at the center, black at the edges and yellow in between. Fresh-water pearl is worth \$15 a ton, or three-fourths of a cent a pound, and therefore the finished product is much cheaper also.

Cutting Shells into Button Blanks.

The first operation in the making of a button is preparing and sawing of the shell into button blanks of various sizes and thicknesses. In one of the accompanying photographs a workman is shown at a machine with a two or three-pound

shell nearly ready to be turned into blanks. Fresh-water shells are handled in the same manner. The blanks, it will be understood, are round and of the same diameter as the buttons into which they are made. The varied thickness of the shell give a variety of thicknesses to the blanks as first sawed out, thus necessitating the slicing of them into many additional blanks, all, of course, of the same diameter. The available blanks having been thus mechanically cut from the shell, the shell presents an odd appearance, indeed, not unlike a target shot full of holes. If the blanks have been prepared upon the banks of some river, they are shipped in sacks like so much grain and are thus received at the storeroom of the button factory proper. These bags contain 200 pounds or more. A grading machine automatically sorts bushels and bushels of these blanks into their respective thicknesses.

The various sizes of buttons at a button factory and to the trade are described by a number and the word "line." There are ten-line buttons and 6-line buttons, and some even larger. There are 40 lines to the inch, and when we speak of a 40-

power applied. The drilling of the holes in the button is done in the same way. About three years ago, a marvelous new invention made its appearance and has revolutionized the industry to no small extent. In the making of fresh-water pearl buttons, one of these machines takes the place of five girls under the former plan. A girl seated at one of these machines places the blanks one after another rapidly in position. On a sort of belt-like arrangement these buttons, as they are put in place, are carried first to the mechanism which shapes and faces, and then a little further to the point at which drills automatically operate in piercing holes. Carried on further, the button is delivered from the machine into a receptacle and the part of the machine which held it on its journey quickly comes round in front of the operator again to be filled. These machines were invented in Iowa and were first put into use by Mr. Watson, of Erie, Pa. They are now coming into quite general use.

Where buttons are of large size and are to be made in some fancy design, this work is done upon a hand machine. These

buttons are of course more expensive. The style of decoration in buttons does not change greatly. After the buttons are finished they go to the tables where a force is engaged in picking out any that may be in any way defective. In another part of the factory another force of girls is employed in fastening the buttons onto cards ready for the market. A large spool of thread is held in place upon the center of the table and a quantity of cards lie beside each of the four girls which surround the table. These girls become very adept at this work and easily sew on 40 gross a day each.

Buttons From Vegetable Ivory.

Next in importance, perhaps, to the buttons of pearl are those used by tailors and which are produced in great quantities from vegetable ivory. Vegetable ivory is picked from trees in South America. It comes in the form of nuts and the tree which bears them resembles a palm. These nuts are picked up by the Indians and shipped to the Isthmus of Panama and from thence find their way North. The nuts are dried and the outer coat removed. Men at machines saw these nuts into slabs, the larger the nuts the larger the pieces which they will obtain from it. Skilled operators hold the slabs against whirling discs and cut the button into shape. The buttons are pure white in color and it is difficult to tell them from real ivory. A large portion of them are next colored by dyes and they go to make buttons for coats, cloaks, trousers and vests.

Horn buttons are usually made from the hoofs of cattle. The hoofs are first boiled in large kettles and softened and then cut. They are stamped into shape under a hydraulic press and then the holes are bored and they are polished. Metal buttons are made from rolled metal plate and shaped in dies, three often being two dies for one button, the parts of the button being brought together before finishing. As to covered buttons, they have been made in the United States for more than three-quarters of a century. At first the covering of buttons was done, as might be surmised, "by hand. Now this work is done by automatic machinery in many places. The in-

side of a covered button may be either metal or wood.
W. FRANK McCLURE.

PERIL IN COLLEGE TRAINING

Medical Authority Points Out the Dangers to American Youth.

American Medicine.

It is wrong to put any one in training at any time, to create a physiologic cardiac enlargement which remains to plague him in after life, but to place the growing boy under this regimen is nothing short of criminal. No college sport should require "training," no matter how much practice is needed, and no game should single out a few very abnormal men. Sports are necessary parts of youthful life, the essentials of child's education, indeed, and every one must take part in them to educate the nerves.

Games are normal only when they cultivate perceptions to accuracy and quickness, but never should they put the tissues to their maximum allowable strain. The only use of the present game stems to be to afford relaxation to those in the grand stand—pale-faced boys who should be at some game themselves instead of rooting for the best of the college. The gambling and commercialism do not concern the medical side of the matter, but are features having a distinctly pernicious psychologic effect upon boys at the very age they can be most injured. We hope that these dreadful Harvard revelations will be the final argument to convince educators and college faculties that they must wake up to their duty to regulate sport.

Play of animals and children is really a means of educating or exercising other parts of the nervous system than the mere memory, which seems to be the main thing drilled in our college youths. If some play is beneficial—and there does not seem to be any doubt on that point—then it must be utilized and encouraged for every student and not so utterly ignored and allowed to degenerate to a form which is injurious.

If You Should Journey Back.

Margaret R. Garvin in Lippincott's. If you should journey back from death, And suddenly should greet my gaze, I would not waste one blissful breath In any hesitant amaze.

My arms would have you in their hold Without one question or reply, My very eyelids would unfold The sight of you, lest it should fly!

My lips, without a word, would seal Confess how lonely they had been; And I would let the joy-tears tell Of grief that kept them locked within.

The pressure of my hands would plead With thine to never let them go, My feet would follow in your lead, Without a wish the way to know.

If you to love should reappear, It would not seem the mystery Our parting was, nor each strange year Wherein you have been lost to me.