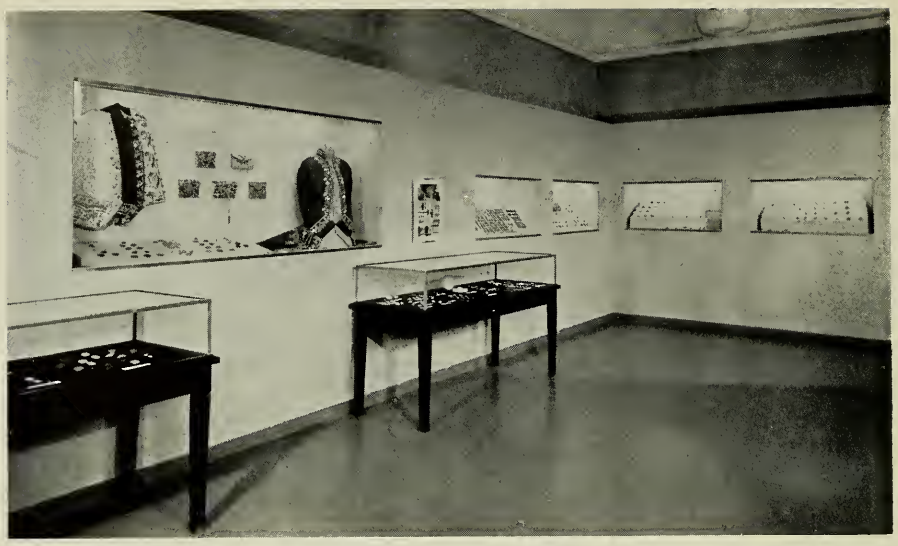


EXHIBITION: 4001 BUTTONS — PARTIAL VIEW ALMONTE 458

TOP ROW: PORTRAIT HEADS IN BLUE-AND-WHITE STONEWARE, PROBABLY ENGLAND, LAST QUARTER OF THE EIGHTEENTH CENTURY. CENTER: PORCELAIN, 1750-1775, FRANCE; TEMPERA ON METAL WITH COVER GLASS, FRANCE, EIGHTEENTH CENTURY; PORCELAIN, EARLY NINETEENTH CENTURY, FRANCE. BOTTOM ROW: ENAMEL; COLORED GLASS; PIERCED SILVER, SET WITH PASTE BRILLIANTS; ENAMEL; PRINTED CELLULOID; ALL FRENCH, OF THE NINETEENTH CENTURY.

ALMONTE - 407

BUTTONS: HISTORICAL NOTES AND BIBLIOGRAPHY[1]

THE LITTLE OBJECT of ornament and utility called the button is not so trivial as the scant literature about it would suggest. At present there is a spreading wave of enthusiasm for button collecting, stimulated no doubt by the low cost and modest space-requirements of buttons as well as by the variety and quality of their design. To more than thirteen thousand people in this country the manufacture of buttons offers a means of livelihood; in 1937 their handiwork was valued at some thirty-one millions of dollars.[75]

From February 5th through April 6th, 1940, the Museum held a special exhibition called *Four Thousand and One Buttons*. It attracted designers, students, manufacturers, and collectors, many of whom raised questions concerning the history of buttons. The information which follows was compiled from the answers to these inquiries. It represents a mere essay into a field which invites much wider attention.

HISTORICAL NOTES

What is the earliest known button? The answer depends entirely upon the kind of button that is meant, for many things have been called buttons which have nothing at all to do with the function of holding articles of clothing together. That is why it is possible to say that the Egyptians as early as the Sixth Dynasty wore buttons; actually these 4,600-year-old objects are badges which were suspended singly from a string about the neck.[35] Buttons of paste and gold leaf have been found among the Mycenaean ruins of 1500 B.C.[37] Many of us are familiar with the buttons that appear on the bridles of horses in Assyrian sculpture, and we have heard that the Schliemann site at Mycenae yielded buttons of gold.[20] Nevertheless, for buttons attached to costumes we have no conclusive evidence among the remains of any of the Mediterranean cultures.

The first real record of buttons on European costumes seems to exist in the architecture and literature of the late twelfth and early thirteenth centuries. Among the sculptured figures on the Cathedral of Chartres are some of women wearing a row of small buttons, closely spaced, along each sleeve.[8] That the fashion was shared by men is indicated in lines

[1] The numerals refer to books listed in the Bibliography that follows.

in one of the Cotton Manuscripts:

"Botones azured wore ilke ane
From his elboth to his hand."[8]

The fashioning of gold and silver buttons was for several centuries restricted to jewelers because pearls, sapphires, and other precious stones were used in their embellishment. In the middle of the thirteenth century a corporation of button-makers was formed in France to supply the growing market.[46] Gradually there appeared craftsmen who worked with more ordinary materials, as in the fourteenth century, when ivory, bone, and horn were fashioned into buttons by bead-makers.[16] Sheet metal and wire, especially brass and copper, were also used at this time. These early costume buttons were essentially ornamental; the prosaic task of fastening one's clothing was left to pins, buckles, girdles, and the like.

As time went by the demand for buttons grew to amazing proportions. While in the fourteenth century a woman's cloak might have fifty buttons, and a man's doublet nearly eighty, in the sixteenth century 13,600 gold buttons were used on a single costume belonging to Francis I.[16] With buttons so numerous among royalty, the demand for them among lesser folk was a natural development. It is not surprising that during the sixteenth century buttons were adopted on a large scale by the common people as objects of utility.

Without question, the great period in the history of button design was the eighteenth century. Jewel buttons in particular became increasingly ingenious in design, as evidenced by the diamond buttons of the Comte d'Artois, each of which encased a miniature watch.[15] More usual were buttons of other cut stones, and of mother-of-pearl encrusted with silver and gold. By the middle of the century, the English had brought to a high development the manufacture of buttons of cut steel.[16] These will always rate among the most interesting of buttons from the standpoint of craftsmanship, as each of the faceted bits of steel with which they are studded — on some, a hundred or more — had to be separately cut and polished, then riveted to a disc of metal. In the last quarter of the century they enjoyed great popularity in France and became an important article of commerce.

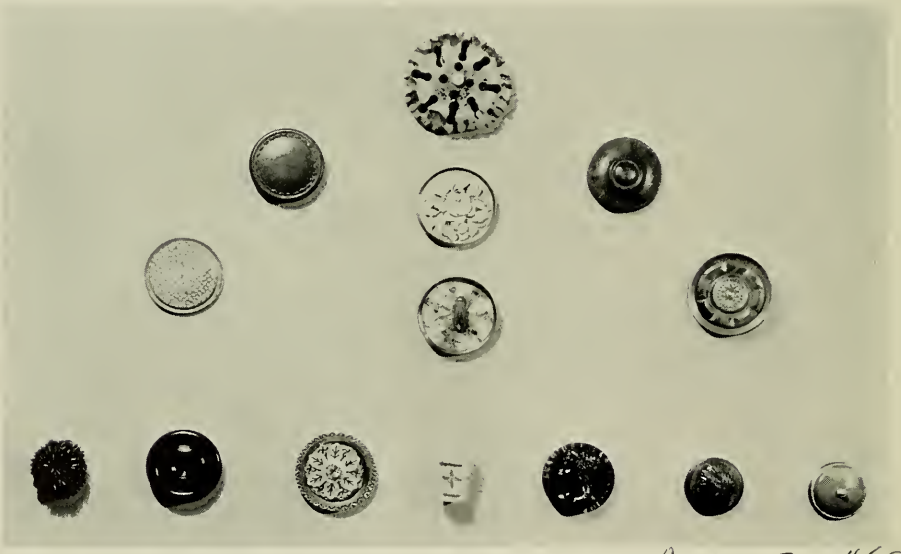
Picture buttons represent another eighteenth century development.[16] Many were painted on metal or ivory, with domed glass covers for protection. Among the classes of ornamentation were antique subjects, historical scenes, portraits, and playing cards. Jean-Baptiste Isabey (1767-

1855) is known to have painted buttons during his youth, copying tableaux of lovers, flowers, and landscapes from Boucher and Van Loo. Similarly, figures after Watteau and Greuze were applied to buttons in paint and in enamel. In 1788 architectural subjects became popular, and collectors formed "galleries" of button pictures of the monuments of Paris. Another kind of painted button was the balloon button, reflecting the interest in balloon ascensions aroused by the Montgolfier brothers. Revolutionary themes and symbols replaced these subjects in France during the closing years of the century.

The button makers of the eighteenth and early nineteenth centuries showed much inventiveness in the variety of materials which they employed. Some excellent work was done in porcelain decorated with delicate figures and flowers, sometimes with the surface modelled to represent woven material. Wedgwood and his imitators supplied blue-and-white stoneware with portraits, trophies, and antique subjects in very low relief. Little shells, insects, and mosses were arranged under glass into compositions resembling miniature habitat groups, and in the same way small butterflies and birds were fashioned of brightly colored feathers. Metal buttons were made for both civil and military wear. Chiefly used were silver, copper, and such alloys as pewter, bell-metal, pinchbeck, bronze, and brass. Plating of silver and gold was common. When the nature of the metal made it practicable, buttons were cast in one piece with the shank; otherwise, loops of durable wire were soldered to the backs to increase the length of wear. Frequently tooled or stamped metal foil was applied over a core or mould of wood, bone, or ivory. Buttons made in this way were very colorful when decorated with spangles or embroidered designs in metal thread.

Although chiefly supplied by England, buttons were made in America at various times and places.[45] The American colonies entered the scene in 1706, when a manufactory of buttons was established in New England. In Philadelphia, Caspar Wistar made brass buttons and buckles before 1750; shortly afterward, Henry Witeman, another Philadelphian, began the manufacture of metal buttons near the Fly Market in New York. Joseph Hopkins, in Waterbury, made sterling silver and silver plated buttons in 1753. Benjamin Randolph, the master cabinet-maker of Philadelphia, announced in an advertisement dated 1770 that he was making buttons "of apple, holly, and laurel wood hard and clear."[45] In 1774, the Provincial Congress of Massachusetts recommended the use of domestic papier mâché buttons to reduce the imports from the mother country. Very soon after the Revolution, however, "buttons,

EMBROIDERED COSTUME AND ACCESSORIES, WITH COVERED BUTTONS; FRANCE AND SPAIN, 1775-1850



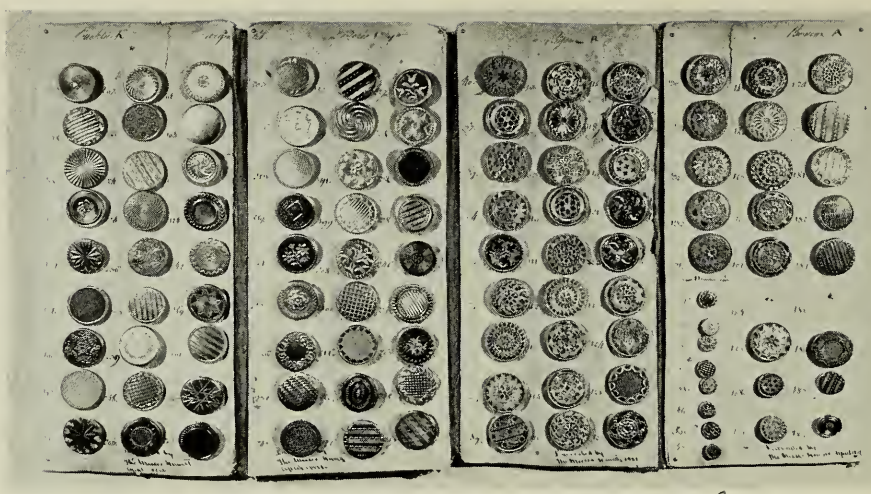
THE ANIMAL, VEGETABLE, AND MINERAL KINGDOMS CONTRIBUTE MATERIALS FOR BUTTONS
TOP GROUP: ANTLER; LEATHER; IVORY; MOULDED HOOF; SHARK SKIN; BEETLE AND MOSS; TORTOISE-SHELL. BOTTOM ROW: SARCILLA SEEDS; VEGETABLE IVORY; MOTHER-OF-PEARL, MOUNTED ON BRONZE; PAINTED CORK; JET; CARVED WOOD; AGATE.

buckles, and other trinkets" were being imported annually into this country to the value of $60,000. At that time silk buttons were being made by household manufacture, especially in Connecticut. The familiar name of Baron von Steuben figures in button history through his invention, in 1789, of a button of conch shell to be worn with suits of pepper-and-salt colors. In those years people made horn and pewter buttons at home, sometimes using the moulds which itinerant pedlars carried as part of their stock-in-trade. Gradually the making of buttons became an occupation for group employment. In Waterbury in 1790 the brothers Samuel, Henry, and Silas Grilley opened a shop for the manufacture of pewter costume buttons. At the same time groups of Shakers were turning out jacket, coat, and sleeve buttons in polished brass, pewter, and horn covered with cloth.[42] In Philadelphia there were two button factories in 1797; in the following year metal buttons were being made in large quantities in Massachusetts, particularly the counties of Plymouth and Bristol.

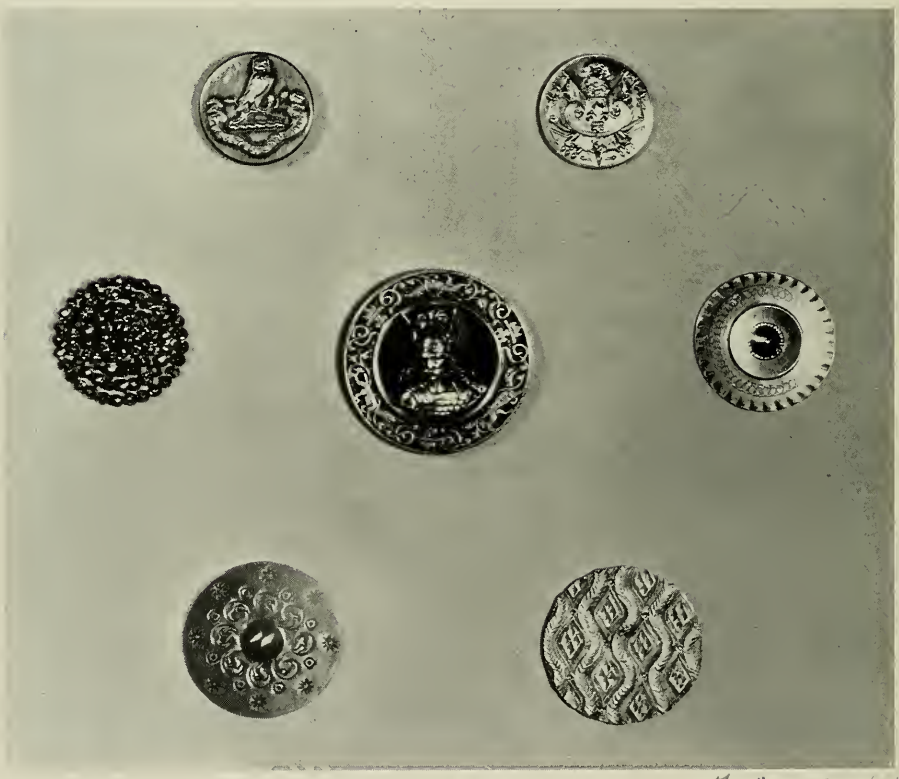
In the middle of the nineteenth century about twenty thousand people were employed in making buttons in France.[8] There was an especially great demand for porcelain buttons, the manufacture of which flourished at Montereau and Briare, respectively within fifty and one hundred miles of the capital. Paris was the center for covered buttons and those of metal, enamel, shell, bone, and horn. Germany ranked second in number of workers. In addition to her active home market, she furnished great quantities of cheap buttons to England, Russia, Spain, Italy, and the United States.

In England, Birmingham was the leading producer, especially of shell buttons, a field in which only Vienna offered any serious competition. The East Indies, Manila, the Bay of Panama, the Red Sea, and the Persian Gulf were the main sources of supply. Not all British buttons were of shell, however. Any Dickens reader knows of the large buttons of brass or horn which men wore on their Pickwick coats in the late 1830's. Indeed, quantities of covered buttons and others of metal, nuts, and hoofs also were made in Birmingham. Notable types of buttons from other parts of Europe were the engraved silver ones of the Netherlands, the silver filigree of Spain, the miniature mosaics of Italy, and the glass buttons of Bohemia.

The nineteenth century marked the establishment and growth of several branches of button manufacture in the United States. The worn-out kettles of the New England rum distilleries, and the discarded sheathing from the shipyards supplied copper, which was mixed with



SALESMAN'S SAMPLE CARD WITH BUTTONS OF THE PERIOD
FRANCE, LAST QUARTER OF THE EIGHTEENTH CENTURY



METAL BUTTONS FOR UNIFORM AND CIVILIAN WEAR
GILT BRASS, SILVER, CUT STEEL, BRASS, GERMAN SILVER, COPPER AND BRONZE

imported zinc to form sheet brass. The market for this material was practically limited to Waterbury, where it was stamped into buttons which were easily marketable because high in value for their bulk and weight.[63]

In 1802 the firm of Abel Porter and Company was formed, engaging thirteen men in making gilt buttons from sheet brass. With the declaration of war in 1812 Aaron Benedict of Waterbury foresaw the demand for military buttons of brass. He forthwith bought all the old brass ware he could find, and when that was gone he resorted to pewter.[55] His success eventually led to the establishment of a large organization which merged with another to form the Waterbury Button Company. The firm of Abel Porter and Company, which in 1816 became Leavenworth, Hayden and Scovill, continued to make gilt buttons of naively high quality until 1821, when Jonas Craft, an immigrant, revealed to them the British method of making threepence worth of gold go as far as a dollar's worth. In 1868, as the Scovill Manufacturing Company, this firm was manufacturing 1500 gross of brass buttons daily. Among the interesting designs struck here were buttons with the portrait of George Washington, a set of which was given the Marquis de Lafayette in 1824, buttons for the projected Texas Navy, for the Pony Express, and for trainmen of the "iron horse" era. Other localities which became prominent for their metal buttons were Attleboro and Haydenville, Massachusetts.

In 1855 the manufacture of shell buttons was introduced into the United States. Soon vast quantities of mother-of-pearl were imported from China, Australia, and the South Sea Islands. A new note was sounded in 1891 when J. F. Boepple recognized the potential value of the fresh water mussels at Muscatine, Iowa. By the turn of the century the annual production of fresh water shell buttons stood at 4,759,671 gross, and button factories dotted the banks of the Mississippi from Goodhue County, Minnesota, to Pike County, Missouri.[62]

In 1859 a new material of vegetable origin made its appearance. This was the nut of the corozo palm (genus Acrocomia) of Ecuador, Colombia, and Panama. Its commercial name, vegetable ivory, suggests its color and texture. It is strong, readily worked, and easily dyed.[1] Even today it is the staple material for buttons on the more expensive grades of men's suits and overcoats.

The trend away from natural materials which is so much in evidence today made itself felt as early as the 1770's, when papier mâché was used. This was followed by hard rubber, of which buttons were made

for the Army and Navy from 1851 to 1869, and for civilian wear as well. In Newark, New Jersey, the brothers J. W. and I. S. Hyatt invented celluloid in 1869. This was the first of those chemical blendings of the most unexpected substances to form something totally different in appearance from any of the ingredients. In the long list of modern plastics an important place in the button field is held by those made of cotton treated with acids and camphor, of carbolic acid and formaldehyde, of furfural, urea, and the casein of milk.

What future is there for buttons? Men who know the industry say that, in spite of the slide fastener and other devices which have replaced buttons to some degree, the industry will continue to grow and to improve. Buttons, freed again for decorative use, are beginning to attract the attention of designers capable of expressing the nature of the newer materials. Perhaps they will enjoy a second golden age.

The exhibition, *Four Thousand and One Buttons,* consisted for the most part of material given at various times by the Misses Sarah Cooper Hewitt and Eleanor Garnier Hewitt, augmented by gifts from the American Catalin Corporation, the Associated Button Corporation, Miss Grace Bigelow, Mrs. DeWitt Clinton Cohen, the Baroness Alma Dahlerup, Elisha Dyer, Mrs. Elizabeth Horton Ells, Mrs. Charles S. Fairchild, Mrs. Henry Morris Fechimer, Norvin Hewitt Green, Mrs. Millia D. Harkavy, Mrs. Lucy Work Hewitt, H. Maxson Holloway, Mrs. John Innes Kane, Mrs. George B. McClellan, the McKee Button Company, Miss Serbella Moores, Mrs. Robert B. Noyes, Mrs. Edward Robinson, the Scovill Manufacturing Company, William S. Silver, Mrs. James Russell Soley, Bromley S. Stone, Miss Helen S. Stone, the Marquis Val Verde de la Sierra, and Waldes Koh-i-noor, Incorporated. Loans were received from the individuals and organizations whose names follow: H. Maxwell Balter, the Brooklyn Museum, Cartier, Incorporated, Miss Emily Robbins Childs, Mrs. DeWitt Clinton Cohen, Elisha Dyer, Miss Janet H. Douglas, Miss Mary S. M. Gibson, Miss Marian Hague, Georg Jensen Handmade Silver, Incorporated, William Heimann, Mrs. Harry S. Koopman, Miss Alice Morse, the New York Historical Society, the Newark Museum, Miss Mary A. Noon, Mrs. Robert B. Noyes, the Philippson Manufacturing Company, Plastic Ware, Incorporated, Miss Marian Powys, Mrs. Angiolina Scheuermann, the Scovill Manufacturing Company, the Tennessee Eastman Corporation, Mrs. Charles D. Thompson, Miss Edith Wetmore, Verdura, Incorporated, and I. Weinberg.

CARL C. DAUTERMAN

BUTTONS: A BIBLIOGRAPHY

THE FOLLOWING BIBLIOGRAPHY is a listing of the more important printed sources of information on buttons. The material has been divided, somewhat arbitrarily, into three groups: General, including trade journals, catalogues of collections, notes on exhibitions, and general works; History, including all material treating of or showing the use of buttons; and, Manufacture, including items concerned with the processes and materials used in making buttons, labor conditions in the industry, and button manufacturers.

The items are arranged alphabetically in each classification. Brief annotations have been made to clarify ambiguous titles or to bring out unique or important features.

Some selection has been exercised in discarding unimportant items offering no new information, or articles of technical nature on button machinery.

GENERAL

1. ART IN BUTTONS, INC. Art in buttons. v. 1-36. Rochester, N. Y.: Art in buttons, 1906-1931. illus. 8vo.

An irregularly published periodical, the house organ of Art In Buttons, Inc.

2. CRUMMETT, POLLY DE STEIGUER. Button collecting. [Chicago: Lightner pub. co., cop. 1939]. 157p. illus. 8vo.

The only work to date on buttons from the collector's point of view.

3. ENCYCLOPEDIA Americana. New York, 1938. v. 5, p. 91-92.

4. ENCYCLOPEDIA britannica. 14th ed. London, 1929. v. 4, p. 470-471.

5. ESSEX INSTITUTE, Salem, Mass. The Emilio collection of military buttons, American, British, French and Spanish, with some of other countries, and non-military, in the museum of the Essex institute. Salem: Essex institute, 1911. 264p. plates. 4to.

Excellent descriptive catalogue of the most important collection of military buttons in the country. Notes on the provenance and historical associations useful.

6. FOUR hundred years of buttons featured in [Cooper union] museum exhibition. (Hobbies. Chicago, 1940. 4to. v. 45, no. 2., p. 17.)

7. HOBBIES, the magazine for collectors. Chicago: Lightner pub. co., 1939-date. 4to.

Buttons, a monthly department, began appearing January, 1939; v. 43, no. 11.

8. JONES, W. UNITE. The button industry. London: Pitman and sons [1924]. ix, 113, 23p. front., illus. 12mo.

The only work at present on the subject. Covers Europe and America with especial emphasis on the industry in Great Britain.

9. MORGAN, WILFRED B. Check list calico buttons. South Hanover, Mass.: the author, cop. 1939. [28]p. illus., diagrs., charts. 16mo.

——— Supplement no. 1. [South Hanover, Mass.: the author, cop. 1940.] [16]p. illus. 16mo.

No text but illustrates 146 known calico button designs. Contains chart for measuring buttons. The supplement illustrates 51 additional designs.

10. RATHBONE, R. L. B. Buttons. (Art journal. London, 1909. 4to. v. 71, p. 7-15. illus.)

Good general account with special mention of metal buttons.

11. ROPES, WILLIS H. The Essex institute's collection of buttons. (Early American industries association. Chronicle. New York, 1937. v. 2, no. 1, p. 6.)

12. SINGLETON, JOHN. The romantic story of buttons. (American magazine. New York, 1925. 4to. v. 99, no. 5, p. 53. 198-201.)

13. WALDES MUSEUM, Prague. Berichte aus dem knopfmuseum Heinrich Waldes. Sammlung von kleiderverschlüssen. Prague: Waldes museum, 1916-1919. v. 1-4. illus., plates (part colored). 4to.

14. ——— Collection of buttons and dress fastening devices . . . programme of the

museum. Report of opening, September 25, 1918. Prague: Waldes museum, 1921. 26,[2]p. col.front., illus. 4to.

15. WATT, ALEXANDER. Notes from Paris; exhibition of buttons. (Apollo. London, 1937. 4to. v. 25, p. 97-98.)

A review of the exhibition of the Bacot collection of buttons held at the Musée Carnavalet in Paris in 1936. Also reviewed by Françoise Goineau in *Beaux arts, le journal des arts,* Paris, December 25, 1936, p. 1-2.

HISTORY

16. ALLEMAGNE, HENRY RÉNE D'. Les accessoires du costume et du mobilier depuis le treizième jusqu'au milieu du dix-neuvième siècle. Paris: J. Schemit, 1928. 3v. illus., plates. 4to.

Good account of the richly jeweled, painted and enameled buttons used during the 18th century, especially in France, with some historical background. See v. 1, p. 55-63 for text and v. 1, plates 7, 10, 27, 44-49; v. 3, plates 287-289 for excellent illustrations.

17. ANKENBRAND, FRANK. Notes on some early American military buttons. (Hobbies. Chicago, 1939. 4to. v. 44, no. 1, p. 113.)

18. BALLOONING souvenirs of the 18th century. (Antiques. New York, 1927. 4to. v. 12, p. 290. illus.)

19. BIRD, HARRISON R. The uniform collection. (Fort Ticonderoga museum. Bulletin. Fort Ticonderoga, 1937. 8vo. v. 4, no. 4, p. 109. illus.)

20. Les BOUTONS d'habit, du Ve au XIXe siècle. ([Paris, 19 ?] 4to. p. 60-64. illus.)

Fragment from unidentified book or periodical published after 1897.

21. BUTTON finery in the mountains of Austria. (Christian science monitor. Boston, June 15, 1938. p. 13.)

22. CALVER, WILLIAM L. The American army button of the War of the revolution. (New York historical society. Quarterly bulletin. New York, 1922-1930. 8vo. v. 5, p. 91-103; v. 13, p. 145-153. illus.)

23. ——— The British army button in the American revolution. (New York historical society. Quarterly bulletin. New York, 1923. 8vo. v. 7, p. 10-23, 44-58. illus.)

24. ——— Distinctive buttons of the Loyalist corps in the American revolution. (New York historical society. Quarterly bulletin. New York, 1929. 8vo. v. 12, p. 135-147. illus.)

25. ——— Eagle buttons found at West Point. (New York historical society. Quarterly bulletin. New York, 1926. 8vo. v. 10, p. 92-93. illus.)

26. ——— Early British and American military buttons. (New York historical society. Quarterly bulletin. New York, 1918. 8vo. v. 1, p. 115-116.)

27. ——— United States army buttons of the War of 1812 period. (New York historical society. Quarterly bulletin. New York, 1932. 8vo. v. 16, p. 13-24. illus.)

28. ——— Washington inaugural buttons. (New York historical society. Quarterly bulletin. New York, 1926. 8vo. v. 9, p.124-126. illus.)

29. ELDERKIN, KATE MCKNIGHT. Buttons and their use on Greek garments. (American journal of archaeology. Concord, N. H., 1928. 8vo. v. 32, p. 333-345. illus.)

30. FALLOU, LOUIS. . . . Le bouton uniforme français de l'ancien régime à fin juillet 1914. Colombes (Seine): "La Giberne," 1915. 327p. 10 col. plates incl. front. fo.

A comprehensive and important work with excellent illustrations.

31. GARDNER, ASA BIRD. Military buttons. (Magazine of American history. New York, 1883. 4to. v. 9, p. 280-284. illus.)

American revolution service buttons.

32. MANCHESTER, HERBERT. The evolution of fastening devices from the bone pin to the Koh-i-noor Kover-zip. [New, enlarged ed.] Long Island city: Waldes Koh-i-noor, inc. [cop. 1938] 40p. front., illus. 8vo.

33. PARKYN, H. B. Later buttons of the british army. (Connoisseur. London, 1924. 4to. v. 68, p. 17-23. illus.)

34. PETRIE, WILLIAM M. FLINDERS. Buttons from Egypt. (Antiquary. London, 1896. v. 32, p. 134-137. illus.)

35. ——— The making of Egypt. London: Sheldon press, 1939. xv, 187p. plates, 2 fold. tabs. 4to.

36. ROWAND, A. Some early English sea service buttons. (Connoisseur. London, 1927. 4to. v. 79, p. 90-100. illus.)

37. RYLEY, A. BERESFORD. Old paste. London: Methuen [1913] x, 99p. front., plates. 4to.

A fairly full synoptic review of this book reproducing one of the plates showing some Georgian buttons may be found in an article by Cecil Boyce in *Connoisseur*, London, 1913, v. 37, p. 239-244.

38. U. S. Quartermaster general's office. Uniform of the army of the United States, illustrated, from 1774 to [1907]. [New York: G. H. Buek and co., 1885-1907.] 2v. col. plates. fo.

39. Webb, Wilfred Mark. Heritage of dress, being notes on the history and evolution of clothes. New and revised ed. London: Times book club, 1912. 299p. front., illus., plates. 8vo.

40. Wright, Richardson Little. Hawkers and walkers in early America . . . 2nd ed. Philadelphia: J. B. Lippincott, 1927. 317p. front., illus., plates, ports., facsims. 8vo.

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41. Ahlers, Lena Carolyn. Just a button. (Normal instructor—primary plans. Dansville, N. Y., 1926. fo. v. 35, no. 7. p. 28, 86. illus.)

Story of two small boys going through a Waterbury button factory.

42. Andrews, Edward D. The community industries of the Shakers. Albany: University of the state of New York, 1933. 322p. illus. 12mo. (New York state museum. Handbook, 15.)

Short note on button making, p. 141.

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45. Bishop, James Leander. A history of American manufactures from 1608 to 1860. 3rd ed. Philadelphia: Young, 1868. 3v. 8vo.

Valuable chronological account of American industries from colonial times to the Civil war. Includes button manufacturers with detailed notes on the industry in Waterbury, Connecticut.

46. Boileau, Etienne. Les métiers et corporations de la ville de Paris, 13ème siècle; le livre des métiers d'É. Boileau, publié par René de Lespinasse et François Bonnardot. Paris: Imprimerie nationale, 1879. (Histoire générale de Paris) . cliv, 420p. tables, facsims. fo.

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Account of establishment of federal biological station for propagation of fresh water clams at Fairport, Iowa.

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History of the Scovill Manufacturing Co., Waterbury, Conn. with illustrations of the Lafayette buttons made by them in 1824.

50. Buttons. (Modern plastics. New York, 1939. 4to. v. 16, no. 8, p. 42. illus.)

51. Buttons as a by-product of beer. (Scientific American supplement. New York, 1917. fo. v. 84, p. 9.)

From *American bottler*.

Ernolith plastic buttons made from left-over yeast.

52. Buttons from gypsum. (Chemical age. New York, 1922. 4to. v. 30, p. 559-560.)

53. Chase, H. What's in a button. (Modern plastics. New York, 1935. 4to. v. 12, p. 36-38. illus.)

Excellent, detailed description of ingredients and physical properties of plastic materials; and processes of plastic button manufacture.

54. Driscoll, G. L. Buttons and Bertha. (Child labor bulletin. New York, 1914. 8vo. v. 3, no. 3, part 2, p. 20-26.)

55. Ever since 1812. (Modern plastics. New York, 1939. 4to. v. 16, no. 5, p. 23-27. illus.)

Brief history of Waterbury Button Co. Describes equipment and processes used in plastic button manufacture.

56. Farrar, F. P. From tagua to buttons. Pan-American union. Bulletin. Washington, 1928. 4to. v. 62, p. 801-809.)

From *West coast leader*.

Good account of the tagua palm nut; how grown, harvested, used in buttons.

57. The Federal government's mussel farm. (Scientific American. New York, 1918. 4to. v. 119, p. 316.)

58. From working clothes buttons to modern novelty finishes. (Metal industry. New York, 1938. 4to. p. 4-5. illus.)

Short history of the Patent Button Works Co., Waterbury, Conn.

59. Gonzalez, M. Ivory nuts for button manufacture. (American industries. New York, 1917. fo. v. 17, no. 6, p. 26.)

60. Haefner, Marie. Argonauts of the Mississippi. (Iowa. State historical society. Palimpsest. Iowa City, 1932. 8vo. v. 8, no. 12.)

61. Ivory from trees made into buttons. (Dun's international review. New York, 1930. 4to. v. 56, p. 34.)

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69. Practical directions for making papier mâché buttons. (Scientific American supplement. New York, 1907. fo. v. 63, no. 1629, p. 26099.)

70. Recueil de planches de l'encyclopedie, par ordre de matières. Paris: Panckouke, 1783-1785. 4v. plates. fo.

Three plates showing tools and shops of button makers in v. 1.

See no. 71 below.

71. Recueil de planches sur les sciences, les arts libéraux et les arts méchaniques, avec leur explication. Paris: Briasson, 1742-1752. 11v. plates., diagrs. fo.

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72. Roberts, S. G. America's fresh water pearl button industry. (Scientific American. New York, 1921. 4to. v. 4, p. 200-203.)

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75. U. S. Bureau of the census. Biennial census of manufactures, 1937. Part 1. Washington: Gov't printing office, 1939. p. 1241-1244.

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Detailed description of machinery and techniques.

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