THE · BULLETIN · OF THE · NEEDLE · AND · BOBBIN CLUB

VOLUME · 30 · NUMBERS · 1 & 2

1946

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VOLUME 30 | 1946 | NUMBERS 1 & 2

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PATTERN SOURCES OF SCRIPTURAL SUBJECTS IN TUDOR AND STUART EMBROIDERIES

By NANCY GRAVES CABOT

FOR ONE with leisure, who is interested in embroidered pictures, and who likewise takes pleasure in the graphic arts, I can recommend the search for the sources of design of Scriptural subjects in English needlework of the sixteenth and seventeenth centuries. It is a pursuit of singular delight, involving an intimate knowledge of lovely old embroideries and an extensive study of early prints and book illustrations, with the occasional gratification of being able to fit the two arts together like pieces of a glorified picture puzzle.

It has long been recognized that many designers of early pictorial embroideries resorted to engravings for their patterns. Prolific artists for more than a century, in the rapid expansion of the art of book illustration and print making, had produced an abundant supply of tales in pictures, on mythological, classical and Scriptural themes, with spirited action and clear cut lines, well suited for translation into another craft. Here was a wider choice of animated scenes for embroideries than was offered in English and Continental pattern books; a resourceful and easy way to build a variety of designs for both the amateur and the professional, and for the latter, concerned with emolument, a means to faster production as well.

Sometimes in these translations the whole scene of a wood-cut or copper engraving was traced quite faithfully, and transferred to the fabric to be embroidered. At other times figures only were culled from the print, and adapted in different arrangements for the design; the naked clothed, garments fashionably altered according to contemporary style, presumably to suit the worker's individual taste. Despite rearrangements, conversion into stitches of silk and wool, and disguise of dress, the character of the figures is seldom so changed that they cannot be identified when the source of their pattern is found.

To trace the actual print from which a particular embroidered scene was derived is a matter of persistent and diligent search. One seldom

finds a contemporary print used as a model for an early needlework pattern, save where the design has been taken from a contemporary reprint of the subject. For Bible stories, so favored by the industrious needlewomen of Tudor and Stuart times, the amount of illustrative material to be explored is especially vast. The whole field of Old and New Testament illustration, chiefly of Germany, France and the Low Countries, from the end of the fifteenth century through the sixteenth and into the seventeenth, lies before one; Bibles, whole or in part, epitomes and paraphrases of the same in prose or poetry, separate sets of engravings of Scriptural subjects, and single pictures, in any one of which the pattern sought may lurk. Yet one need have no misgiving that the time consumed in systematic search for the needle in a haystack of such proportions is wasted, be the design never so elusive, for the material over which one pores represents the golden age of wood-cut and copper engraving, and the burgeoning of book illustration. Indeed, one is frequently tempted to abandon the special object of search for a wider study of the graphic arts.

Before undertaking the quest for the pattern source of a Scriptural subject in embroidery, it is helpful to refresh the memory with the original narrative as explicitly and vividly set forth in the Bible, being attentive to the dramatic details that will assure recognition of the scene in either needlework or illustration. It adds much to the enjoyment to observe with what fidelity the early artists followed the stage instructions of Holy Writ, all properties depicted, each actor in his proper role. It is well likewise to gain a preliminary knowledge of the best work in sixteenth century Bible illustration, the period that has yielded the greatest number of prints identifiable with designs of early English needlework. One should study the wonderful *Historiarum Veteris Testamenti Icones* of Hans Holbein, and the first four cuts in his *Dance of Death*, both published first in Lyons in 1538, Raphael's frescoes of the Old Testament in the Loggie of the Vatican, the prints of Albrecht Durer, Heinrich Aldegrever, and Hans Sebald Beham, the *Quadrins Historiques de la Bible*, published in Lyons in 1553 by Jean de Tournes, with woodcuts by Bernard Salomon, the *Biblische Figuren* of Virgil Solis, Frankfort, 1560, Jost Amman's illustrations in Josephus Flavius' *Antiquitates Judaicae*, Frankfort, 1580, and the *Thesaurus Sacrarum* of Gerard de Jode, Antwerp, 1585. These have particular mention because they have proved most fruitful, but other works have interest also, and should not be overlooked, such as the *Neue künstliche Figuren Biblischer Historien*

of Tobias Stimmer, Basle, 1576, the *Biblia Sacra* illustrated by the de Brys, and the *Liber Genesis* of Crispin van de Passe, at the turn of the century. The list of possibilities is endless. If acquaintance with these Scriptural prints of the sixteenth century excites a curiosity to know something of Biblical illustration in the fifteenth, as an introduction to earlier work, there are Quentell's *Cologne Bible of* 1478-9, Schedel's *Weltchronik* (the Nuremburg Chronicle), 1493, with wood-cuts by Michael Wolgemuth and Wilhem Pleydenwurff; the *Malermi Bible,* Venice, 1490, the *Lubeck Bible* 1494, and the lovely French *Books of Hours* of Pigouchet, Verard and Kerver.

Beside the pleasure of the hunt, it is a sport in itself to try to recognize the influence of early artists on later illustrators, and to attempt to identify the latter's wholesale borrowings. Frequently an artist has incorporated figures from another's design into his own composition, an unscrupulous practice which makes for confusion, when one is trying to follow a pattern trail to its source.

Among the household furnishings adorned by sixteenth and seventeenth century English ladies with the immortal dramas of the Old Testament and Apocrypha, were bed valances, felicitous in length for the unfolding of a tale, caskets, with many sides for a sequence of events, book-bindings, mirror frames, cushions and pictorial panels, framed for a wall. Many of these, especially the valances, cushions and panels, were wrought chiefly in tent-stitch or *petit-point* with silk, wool and metal threads on canvas, probably to approximate a woven technique, giving the illusion of a tapestry in miniature. Others were carried out in a variety of stitches on a satin ground, or in "stump-work," that elaborate and fantastic "tour de force" of the Stuart embroideress, happily short-lived.[1]

From the many pictorial embroideries that have survived the household hazards of nearly three centuries, a marked preference is evident for certain Old Testament subjects, specifically the stories of Adam and Eve, Abraham, particularly his banishment of Hagar, the Sacrifice of Isaac, Rebekah at the Well, Joseph and his many adventures, David and Bathsheba, the Judgment of Solomon, Solomon and the Queen of Sheba, Esther and King Ahasuerus; and from the Apocrypha the stories

[1] This term, in the opinion of John L. Nevinson of the Victoria and Albert Museum, is a misnomer. He states in his *Catalogue of English Domestic Embroidery of the Sixteenth and Seventeenth Centuries* (London, 1938), that the expression was not known when the work was done, and that a better term would be "raised workes" which occurs in a late sixteenth century pattern book.—Ed.

of Susannah and the Elders, and Tobias and the Great Fish. The story of the Prodigal Son is a popular subject drawn from the New Testament. However, there are few dramatic episodes in the Bible, appropriate or not, that have not been depicted in embroidery, even the miserable sore-infested Lazarus before the rich man's table.

It is fascinating to imagine the interest and pleasure that illustrated Bible stories brought to women in English households, where religious fervor burned, and few could read. As the development of printing made such books accessible in price, and small volumes, easy to handle, came into vogue, their popularity soared. The many successive editions of illustrated paraphrases of the Old Testament with explanatory verses beneath each print, published throughout the sixteenth century, indicate how eagerly they were bought. Whether the quatrains were in German, French or Italian, the obstacle of language dissolved before the universal idiom of the picture-book. As prints from the same blocks and plates continued in use well into the seventeenth century, it is not surprising to find a design of the early sixteenth century in the hands of a seventeenth century designer of needlework.

Undoubtedly deft fingers plied their needles with greater zeal when the work in hand combined the edification of sacred story with the drama of man's frailty, and the lady of a great house had little need to spur her compassionate gentlewomen to the completion of a long valance with little Isaac, "the wood of the burnt-offering laid upon him," and the heavy hearted Abraham, "the fire in his hand, and a knife," plodding up the mountain in Moriah to God's appointed place.

When figures and scenes have been traced from engravings for embroidery patterns it is not easy to distinguish between the amateur and professional hand. This is especially true of the simpler pictures not confined within a border, where a few figures dominate the scene, and motifs of flora and fauna are scattered in the empty places in more or less accidental order to complete the composition. The trained hand is more easily recognizable in designs that must compose within a bordered space, or when the intricate elements of an elaborate background behind a progression of tableaux, as in a bed valance, have been disposed with authority, and an experience that achieves harmony. Many of the simpler designs were undoubtedly drawn at home by enterprising needleworkers of artistic ability, impatient with their isolation on their large estates. There must also have been shops in London or other large towns where the designs of professional draughtsmen could be bought prepared and

ready for working, as they are today. Such shops may have sent salesmen to the great mansions with their special stock of patterns, to take orders and give the ladies a choice in the arrangement of motifs.

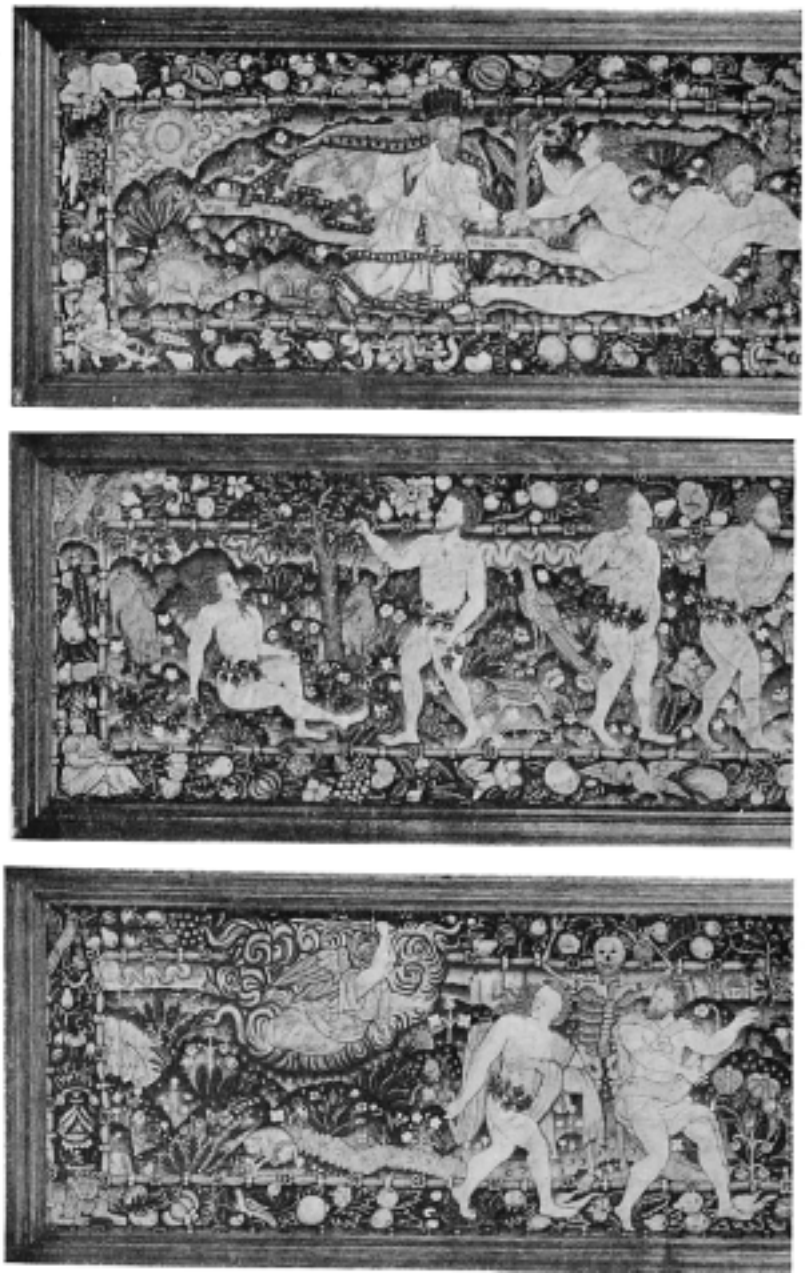
In the Household Books of Lord William Howard, of Naworth Castle,[1] are recorded from 1612 on, the daily expenditures for his vast domain on the Scottish border, and likewise in great detail the smaller outlays for members of the household. There are many entries of materials with which to embroider; "silkes and crewells bought at Michaelmas for my Lady," "an ounce of Venice gould, an ounce of silver for Mrs. Mary," "to Jo Pildrem for colered crewels," but no record of the purchase of the embroidery pattern for which the silk, wool and metal threads were bought. Surely other Household Books will one day come to light with mention of specific dealers in prepared needlework patterns.

Among the many remarkable embroideries in the collection of Viscount Leverhulme, sold at the Anderson Galleries in New York in 1926, were three ornamental bed valances (Figs. 1, 2, 3), formerly in the collection of the Earl of Kinnoull, of Balhousie Castle in Perthshire, Scotland. While they show the style of late sixteenth century needlework that carried over into early Stuart times, they vary somewhat from the usual Elizabethan bed valance in the freer and more naturalistic treatment of fruits and foliage, and the abstention from the incongruity of Bible characters clad in the magnificence of contemporary court dress. Six scenes portray the story of Adam and Eve, from the creation of woman to the weary days at hard labor outside the Garden of Eden. The figures are boldly drawn and the drama moves swiftly to its tragic climax. The composition is original in its encroachments on the borders, skillful in its unconventionality. An informal and lively effect has been achieved by the use of more varied and looser stitches than the precise *petit-point* of much Elizabethan work. They are wrought with silk, wool and metal threads on a linen ground, in blues, grays, buffs and greens. Tent-stitch has been used for the nude figures only; the landscape is worked in variable chain-stitch, and the sumptuous Renaissance borders with a bold Gobelin.[2] The motifs generally are outlined with a flowing stem-stitch. The capacious garments of the Lord have been singled out for appliqué of crimson and white silk with a woven design in metal thread.

Despite the differences in their vigorous free-hand adaptation, deriva-

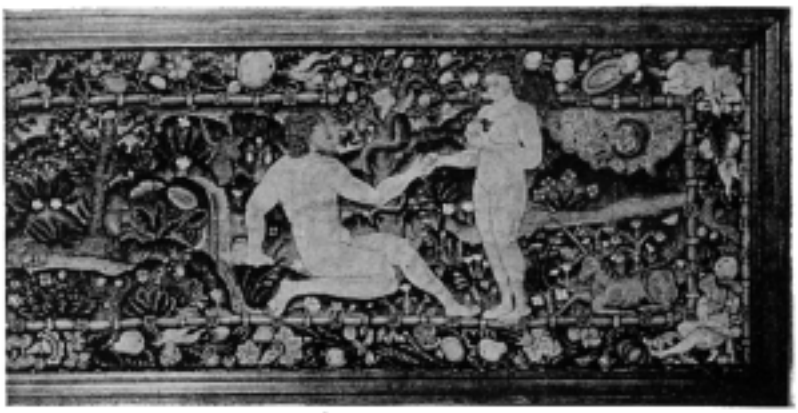
[1] Published by the Surtees Society, London, 1877, Vol. LXVIII.

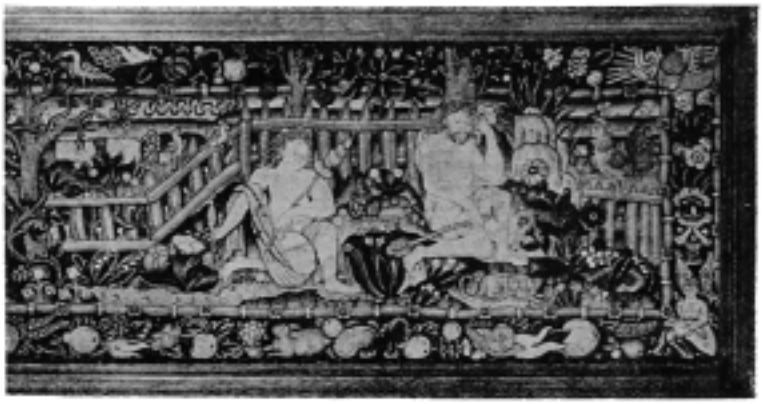
[2] Gobelin stitch resembles *petit-point*, except that it crosses two threads instead of one, of the canvas. It can also be worked in a vertical position.—Ed.



FIGS. 1, 2, 3

THE STORY OF ADAM AND EVE. EMBROIDERED VALANCES, LATE XVI CENTURY.
THE FIRST AND THIRD VALANCES, COLLECTION OF GEORGE R. HANN.
CENTER VALANCE, COURTESY OF THE METROPOLITAN MUSEUM OF ART.





FIGURES 1 AND 3, COLLECTION OF GEORGE R. HANN.
FIGURE 2, THE METROPOLITAN MUSEUM OF ART.

tion of the figures from the charming little wood-cuts of Bernard Salomon (Figs. 4, 5, 6, 7, 8, 9), is obvious. These are illustrations to the *Quadrins historiques de la Bible*, with verses by Claude Paradin, published by Jean de Tournes, in Lyons, in 1553, a small octavo volume, that enjoyed a wonderful popularity, to judge from its many subsequent editions, and its immediate translation into Spanish and English the same year, into German and Italian in 1554, Flemish and Latin by 1558. The same wood-cuts continue to adorn the many Bibles printed by the de Tournes in Lyons until 1585, and in Geneva in the seventeenth century, when religious persecution forced Jean de Tournes II from his native city. Bernard Salomon, of Lyons, usually called *"le petit Bernard"* (ca. 1508-1561), was for fourteen years the most notable artist employed by the de Tournes establishment to decorate their lovely books. It is claimed also that he was a designer of furniture coverings, and cartoons for tapestries, though no examples of these are known.[1]

The wood-cuts illustrated are taken from the English version of this *Quadrins de la Bible*, entitled: *The true and lyuely historyke purtreatures of the VVoll Bible*, at Lyons, by Jean de Tournes, MDLIII." The clumsy translation of Paradin's quatrains is by one Pierre Derendel, a man of French origin brought up in England, who undertook the work in gratitude "to the countre wherein I had ben nourrished and brought up," and in propitiatory concern lest England feel slighted that the *Quadrins* were "being lickewise putte in sixe other languages." The dedication reads "To the right worshipfull and most worthie Master Pikeling, embassadour to the Kinge of Englande, Peter derendel, peace an felicitie," "Master Pikeling" being Sir William Pickering, ambassador from Edward VI to the court of France, from 1550 to 1553.

In using the figures from Bernard Salomon's prints for those in the Adam and Eve valances, the designer copied attitudes and gestures only, retaining nothing of the Fontainebleau grace, which gave distinction to *"le petit Bernard's"* style. The background seems to be the designer's own, the various animals taken from elsewhere. Practical additions to the composition are the well placed tree for Eve to grip in the agony of creation, and the carafe and goblet beside the toilworn Adam outside the Garden, masterpieces of sixteenth century craftsmanship. Elements in the borders suggest the swags, festoons and balanced figures of six-

[1] A sixteenth century tapestry, No. 363 in the catalogue of the Leverhulme Sale, depicting the return of Joseph's brethren to their father, was clearly designed from Bernard Salomon's composition of the subject in the *Quadrins de la Bible*.

FIG. 4

CREATION OF EVE.

THE TRUE AND LYUELY HYSTORYKE PURTREATURES OF THE VVOLL BIBLE.

LYONS, JEAN DE TOURNES, MDLIII.

WOOD-CUTS BY BERNARD SALOMON (C. 1508-1561).

HOFER COLLECTION, HOUGHTON LIBRARY, HARVARD UNIVERSITY.

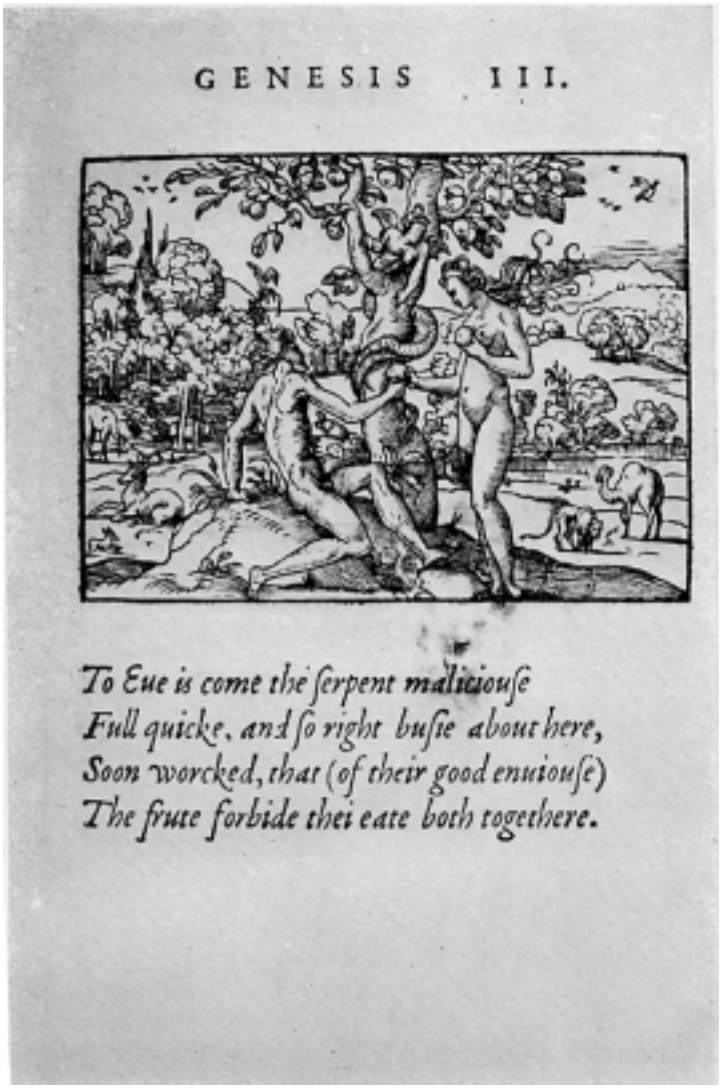


FIG. 5
THE TEMPTATION AND FALL.

FIG. 6

GATHERING FIG LEAVES TO MAKE THEMSELVES APRONS.

GENESIS III.

God then knowing ſuche craftie deception,
Adam called roughlie and ſore chidding:
His curſe them gaue and his malediction,
For diſpiſing of his holie bidding.

FIG. 7
GOD'S DISPLEASURE.

FIG. 8
THE EXPULSION.

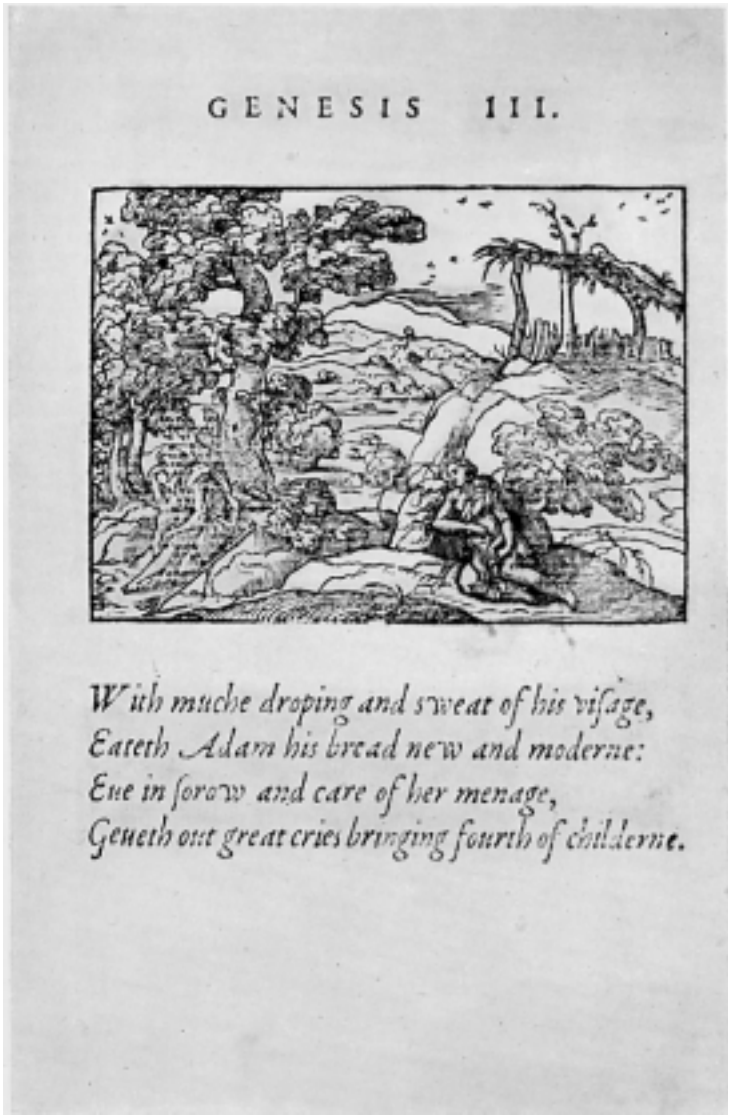


FIG. 9
OUTSIDE THE GARDEN OF EDEN.

teenth century French title-pages, which in itself would be a lengthy but fascinating quest.

The scene of Tobias with the Great Fish (Fig. 10), from a *petit-point* panel in the fine collection of Sir Frederick Richmond, of Westoning Manor, Bedfordshire, is another pictorial embroidery derived from an illustration by *"le petit Bernard"* (Fig. 11), in which the designer has more closely followed the original composition, imitating the Angel's elongated style, and including the rocky landscape background. The wood-cut reproduction is from the *Biblia Sacra* of Jean de Tournes, Lyons, 1558.

In view of the translation of the *Quadrins de la Bible* into other languages, it is interesting to note that the same print of Tobias and the Fish was used for an embroidered illustration in a Spanish book of the seventeenth century, now in the Elizabeth Day McCormick Collection in the Museum of Fine Arts in Boston. It is worked on parchment in flat stitches with colored untwisted silks. Again, of Swiss or German origin, is a *Tapis brodé*, dated 1606, in the Museum at Zurich [1] with a border of Old Testament scenes in oval frames, crude but unmistakable copies of prints from the book of Genesis in the *Quadrins de la Bible*, and an Italian seventeenth century embroidered border in the collection of Mrs. David Gubbay,[2] has an Adam and Eve adapted from the same source. The great popularity and wide dispersion of these illustrations is certainly manifest in their repeated use as a source for embroidery design.

A charming embroidered book-binding of about 1635-1645, in the Pierpont Morgan Library (Fig. 12), is unusual and fortunate in having the name of the embroideress inscribed on the original fly leaf of the 1599 Bible within:

"Anne Cornwaleys Wrought me
now shee is called Anne Legh."

To all appearances the design is Anne's as well; a naïve statement of Adam and Eve by the Tree of Knowledge, the fowl of the air, the beasts of the earth, and the fish in the sea, at least one fish, a crustacean, and a mermaid. It is worked chiefly with colored silks on a white satin ground. The worker was ambitious in her stitchery, not even fazed by stump-work, as witness the swollen proportions of her terrifying serpent. What she lacked in skill, she made up in a lavish use of metal thread, couched

[1] L. de Farcy: *La Broderie du XIe siècle jusqu'a nos jours.* Paris, 1890, Vol. II, p. 240.
[2] Symonds and Preece: *Needlework Through the Ages.* London, 1928, Plate LXI, No. 2.

FIG. 10

TOBIAS AND THE GREAT FISH. DETAIL OF TUDOR PETIT-POINT PANEL.
COLLECTION OF SIR FREDERICK RICHMOND, BART.

sufficeret eis, quoquo perueniret in
B Rages ciuitatē Medorum. Tūc interro-
gauit Tobias angelū, & dixit ei, Obsē-
cro te Azaria frater, vt dicas mihi, quod
remediū habebūt ista quæ de pisce ser-
uare iussisti? Et respōdens angelus dixit
ei, Cordis eius particulā si super carbo-
nes ponas, fumus eius exticit omne ge
nus dæmoniorū, siue à viro, siue à mu-
liere, ita vt vltrà non accedat ad eos. Et
fel valet ad vngendos oculos in quibus
fuerit albugo, & sanabuntur. Et dixit ei
Tobias, Vbi vis vt maneamus? Respon-
densq; angelus, ait, Est hic Raguel no-
mine, vir propinquus de tribu tua, &
hic habet filiam nole Sarā, sed neq; ma
sculū, neq; fœminā vllam habet aliam
C præter eam. Tibi debetur vis substan-
tia eius, & oportet eā te accipere con-
iugem. Pete ergo eā à patre eius, & da-
bit tibi eā in vxorē. Tunc respōdit To-
bias, & dixit, Audio quia tradita est se-
piē viris, & mortui sunt sed & hoc au-
dini, quia dæmoniū occidit illos. Timeo
ergo ne forte & mihi hæc eueniant: &
cum sim vnicus parentibus meis, depo-
nam senectutem illorū cum tristitia ad
inferos. Tunc angelus Raphael dixit ei,
Audi me, & ostendā tibi qui sunt qui-
bus præualere potest dæmoniū. Hi nan-
que qui coniugium ita suscipiunt, vt
Deū à se, & à sua mente excludant, &
suæ libidini ita vacēt, sicut equus & mu
lus, quibus nō est intellectus: habet po
testatē dæmonium super eos. Tu autē D
cùm acceperis eam, ingressus cubiculū,
per tres dies cōiunx eius esto ab ea, & ni-
hil aliud, nisi orationibus vacabis cum
ea. Ipsa autem nocte, incēso iecore pi-
scis, fugabitur dæmoniū. Secunda verò
nocte, in copulatione sanctorū patriar-
charum admitteris. Tertia autē nocte
benedictionē consequēris, vt filij ex vo-
bis procreentur insolumes. Transacta
autē tertia nocte, accipies virginē cum
timore Dei, amore filiorū magis, quàm
libidine ductus, vt in semine Abrahæ
benedictionem in filiis consequaris.

CAPVT VII.

INgressi sunt autē ad Raguelem, A
& susceptī eos Raguel cū gau-
dio. Intuensq; Tobiam Raguel,
dixit Annæ vxori suæ, Quàm similis est
iuuenis iste cōsobrino meo! Et cū hæc
dixisset, ait, Vnde estis iuuenes fratres no
stri? At illi dixerūt, Ex tribu Nephthalim
sumus, ex captiuitate Ninuæ. Dixitq; illis
Raguel, Nostis Tobiā fratrē meū? Qui
dixerūt, Nouimus. Cumq; multa bona
loquerentur de eo, dixit angel' ad Rague-
lem,

FIG. 11

TOBIAS AND THE GREAT FISH.

WOOD-CUT BY BERNARD SALOMON (C. 1508-1561).

BIBLIA SACRA, JEAN DE TOURNES, LYONS, 1558.

HOFER COLLECTION, HOUGHTON LIBRARY, HARVARD UNIVERSITY.

FIG. 12

EMBROIDERED BOOKBINDING (C. 1635-1645).
WORKED BY ANNE CORNWALEYS LEGH.
THE PIERPONT MORGAN LIBRARY.

silver strips called "lizarding," and silver wire. The result is rich and worthy of its reverent purpose. Perhaps she turned to the books in her father's library for illustrations to indulge her fancy for a pattern, and found there a Breeches Bible,[1] published by Robert Barker in London in 1602, with the frontispiece full of ideas (Fig. 13), from which she seems to have adapted her Adam and Eve and a few animals. The embroidery of the other half of the cover represents the New Testament, Christ appearing to Mary Magdalene in the Garden, with a border of the symbols of the Passion.

An equally interesting embroidery with amateur flavor that again suggests the home book-shelf and a title-page is the arcaded panel with Biblical scenes, of the mid-seventeenth century, formerly in the collection of Miss Grace Clarke, now in the Fitzwilliam Museum in Cambridge, England (Fig. 14). This also is worked in polychrome silks on a white satin ground, the arcades rendered substantial with metal thread. In the embroidery, and in the title-page to *du Bartas, His Divine Weekes* (Fig. 15), conjunction of the same subjects is shown, on the left the Temptation, adapted by the engraver, R. Elstracke, in his turn from Albrecht Durer, on the right the Sacrifice of Isaac, from an unidentified source. The title-page appears to have been the model for the embroidery, having the self-same combination of subjects, derivation and architectural rendering.

It is likely that the works of this French poet, Guillaume de Salluste du Bartas (1544-1590), would have been found in English libraries at this period, in particular his poem on the creation of the world, called *Le Sepmaine*, first published in Paris in 1578, and immediately so well received that it ran through thirty editions in six years. A great favorite in England, where Joshua Sylvester translated it in 1598, its exalted tone excited enough popularity for its author to be known as the "divine du Bartas." Sylvester's translation, *du Bartas, His Divine Weekes and Workes*, was first published in London in 1605, by Humphray Lownes with a title-page by William Hole, on which Renold Elstracke (1571-1625), the English engraver, based his design for the later edition also printed by Lownes in 1621. Our reproduction is from a reprint of 1641, published by Robert Young.

The praiseworthy vogue of English needleworkers to honor the Lord

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[1] So-called because of the translation in an Early Bible of Genesis. Chapter 3, Verse 7: "Then the eyes of them both were opened, and they knew they were naked, and they sewed figge leaves together, and made themselves breeches." (Ed.)

FIG. 13

FRONTISPIECE. BIBLE, ROBERT BARKER, LONDON, 1602.
THE PIERPONT MORGAN LIBRARY.

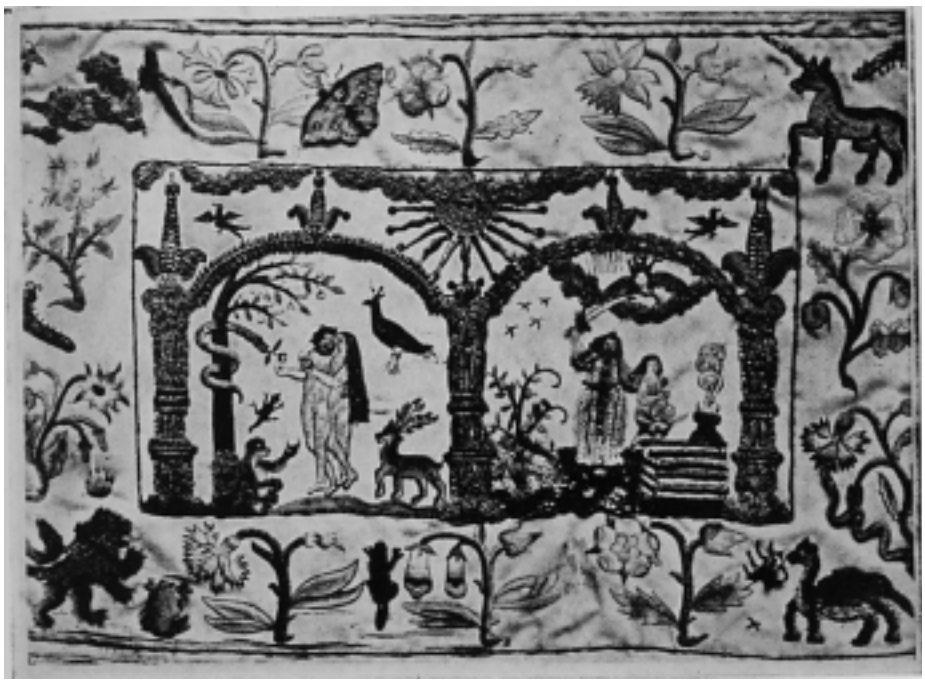


FIG. 14

EMBROIDERED PANEL WITH BIBLICAL SCENES, MID-17TH CENTURY.
THE FITZWILLIAM MUSEUM, CAMBRIDGE, ENGLAND.

FIG. 15

TITLE-PAGE ENGRAVED BY R. ELSTRACKE.
DU BARTAS, HIS DIVINE WEEKES AND WORKES, LONDON, 1641.
THE BOSTON PUBLIC LIBRARY.

with the skill of their handiwork is shown in two other seventeenth century embroidered book-bindings, preserved in the British Museum (Figs. 16a, b and 17a, b). The earlier one covers a Bible of 1612, and is worked in tent-stitch on a fine canvas with bright colored silks, and metal thread. The background is largely of silver, and a gold cord outlines some of the forms. The designs are simple Old Testament scenes without borders, Esther finding favor in the sight of King Ahasuerus, and Jacob wrestling with the Angel. The second, the cover to the book of Psalms of 1643, is embroidered in a variety of flat stitches with polychrome silks on a white satin ground. Here two scenes of Jacob have been chosen for the pattern, his Dream of a Ladder ascending into Heaven, and again the Struggle with the Angel. Despite variations in these two pieces, due to two kinds of embroidery and drawing by different hands at different periods, the figures of Jacob and the Angel on both bookbindings, though one is in reverse, clearly have been adapted from a common model. What seems to have been the model for these and for the scene of Esther before King Ahasuerus as well (Fig. 16a), was found among the Old Testament illustrations by Jost Amman (1539-1591), in the Latin translation of the *Antiquities of the Jews*, by Josephus Flavius, printed by Sigismond Feyerabend, in Frankfort, 1580 (Figs. 18 and 19).

Though the Old Testament wood-cuts of Jost Amman appeared first in a German Bible, published in Frankfort, 1564, and in many successive editions there, they would in all probability have been more commonly available for an English designer in the *Antiquities of the Jews*, since the famous works of Josephus were usually to be found in English houses of the period, imparting an air of scholarship and virtue beside the family Bible and Prayer Book. Old Testament prints of many artists were used to illustrate the works of Josephus. In Lyons, in 1566, there were the wood-cuts of Pierre Woeriot, published by "les heritiers de Jaques Jonte," and in 1569 the same printers used the series from the *Quadrins de la Bible* of "*le petit Bernard.*" There were German editions with prints by Christopher van Sichem, and the brothers Tobias and Hans Christoph Stimmer, Dutch editions with illustrations after Matthew Merian, and copper engravings by Francois Chauvéau in the French translation by Arnauld d'Andilly (1667). None of these should be overlooked in the search for the sources of design.

The hand of Jost Amman is more apparent in the needlework picture of Jacob's Dream (Figs. 20 and 21), than in the simpler version on the

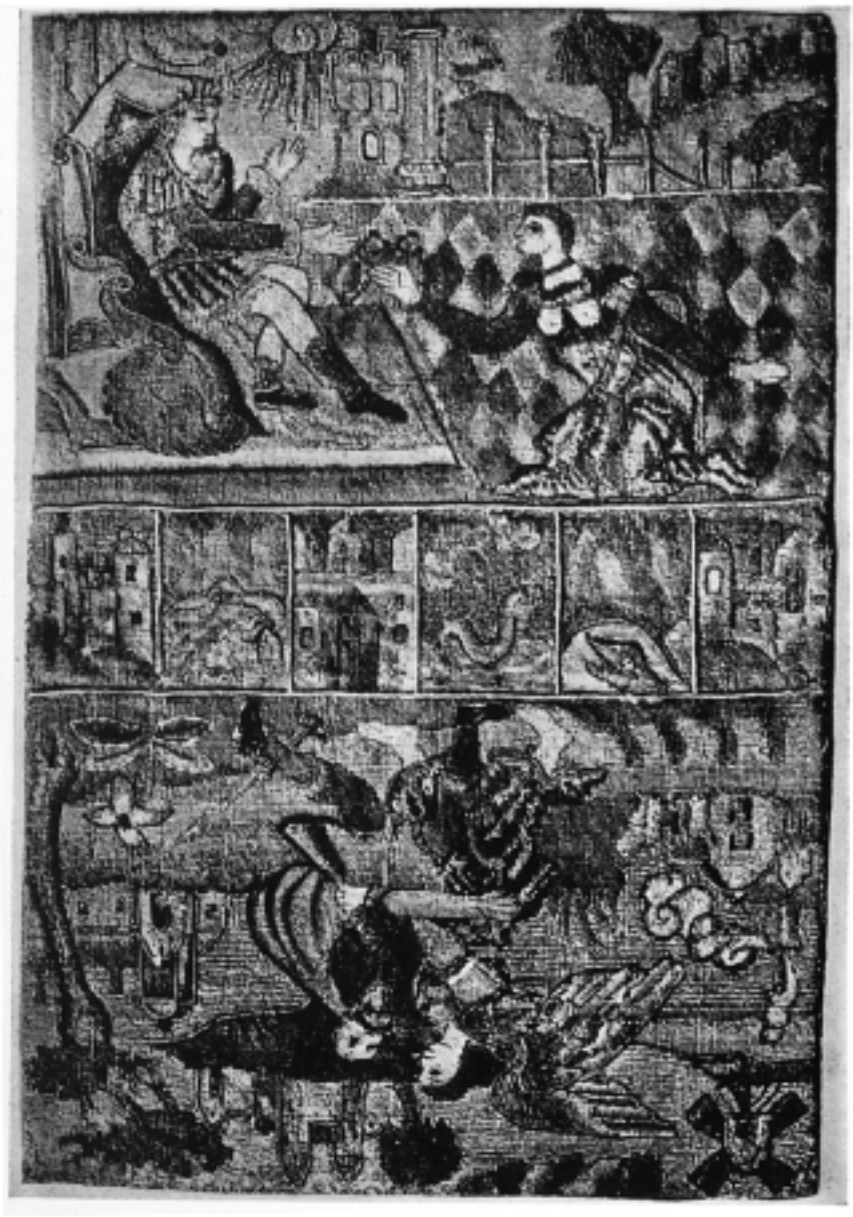


FIG. 16 (A AND B)

(A) ESTHER BEFORE AHASUERUS. (B) JACOB WRESTLING WITH THE ANGEL. EMBROIDERED BOOKBINDING. BIBLE, LONDON, 1612.
THE BRITISH MUSEUM.

FIG. 17 (A AND B)
(A) JACOB'S DREAM. (B) JACOB WRESTLING WITH THE ANGEL.
EMBROIDERED BOOKBINDING. PSALMS, LONDON, 1643.
THE BRITISH MUSEUM.

FIG. 18

JACOB WRESTLING WITH THE ANGEL. WOOD-CUT BY JOST AMMAN (1539-1591).
JOSEPHUS FLAVIUS, ANTIQUITATES JUDAICAE, FRANKFORT, 1580.
THE BOSTON PUBLIC LIBRARY.

FIG. 19

ESTHER BEFORE KING AHASUERUS. WOOD-CUT BY JOST AMMAN.
JOSEPHUS FLAVIUS, ANTIQUITATES JUDAICAE, FRANKFORT, 1580.
THE BOSTON PUBLIC LIBRARY.

FIG. 20

JACOB'S DREAM. WOOD-CUT BY JOST AMMAN.
JOSEPHUS FLAVIUS, ANTIQUITATES JUDAICAE, FRANKFORT, 1580.
THE BOSTON PUBLIC LIBRARY.

FIG. 21

JACOB'S DREAM, NEEDLEPOINT PICTURE, XVII CENTURY.
COLLECTION OF FRANK PARTRIDGE AND SONS, LTD.

embroidered book of Psalms of 1643 (Fig. 17a). Various of the animals—the elephant, horse and lion—are easily identifiable in other woodcuts of the series. The embroidery is a small picture to include so much detail, measuring but sixteen inches by twelve. Another, almost its twin, except for a few minor motifs, is in the collection of Mrs. Myron Taylor of Locust Valley, Long Island.

One would hardly expect to find in the turbulence of Rubens, subjects from which a simple needlework might be derived, yet where are Scriptural themes more tellingly presented? In the panel depicting the Judgment of Solomon (Fig. 22), another Stuart embroidery formerly in the collection of Miss Grace Clarke, figures essential to the story have been adapted after Rubens (Fig. 23), presumably from the engraving by Boëtius Adam à Bolswert (1580-1634). The tense moment of agonizing suspense, when King Solomon said: "Divide the living child in two, and give half to the one, and half to the other", has been successfully sustained in the new medium. There have been other Rubens scenes recognized in early English embroidery,[1] and other embroideries adapted from his Judgment of Solomon, emphasizing its popularity as a subject, for example, a picture in the collection of Judge Untermyer, and a chair back in the collection of Mrs. W. Tudor Gardiner of Boston.

There are large numbers of English embroideries, usually ascribed to a generous middle of the seventeenth century, depicting Old Testament stories, preserved in collections here and in England, that are extraordinarily alike in style and character, though worked in various techniques. The same subject is often repeated, the same units of design recur again and again, in varying arrangements, usually in pictures, or tops of cushions framed as such, and also on caskets and mirror frames. The same border, a lovely thing, of the same sprigs, alternating with the same small creatures, frequently encloses the scene. Such marked similarity of pattern of many embroideries worked within a comparatively short period of time indicates that the designs for this particular group were bought from one and the same professional designer. Further evidence to this assumption may lie in the discovery in one publication of a surprising number of engravings from which these patterns were adapted, namely, the *Thesaurus Sacrarum Historiarum Veteris Testamenti*, printed in Antwerp in 1585, in two volumes, oblong quarto, by Gerard de Jode

[1] *Antiques Magazine*, March, 1946, "Bible Pictures in English Needlework," by Marion Bolles, Fig. 8, a and b.

(1521-1591),[2] Flemish engraver, publisher and print-seller. There is no text; it is a collection of large plates by various engravers after different artists that have been bound together with descriptive captions in Latin, to tell in pictures the stories of the Old Testament. The artist whose work has been favored most by engravers is Martin de Vos (1531-1603), the prolific Flemish painter. Many of the engravings that make up the volumes had previously been issued singly as well as in series, and were available to designers other than in the bound volumes of de Jode. Substantially the same collection of pictures was later engraved and issued by Claes Jansz Visscher, Dutch publisher and print-seller, in 1650, entitled, *Theatrum Biblicum Historiae Sacrae Veteris ac Novi Testamenti.*

Among the embroideries whose subjects can be traced to the prints in the *Thesaurus Sacrarum* is the very beautiful panel with an ornamental border framing scenes from the life of Abraham, in the collection of Judge Irwin Untermyer (Fig. 24). It is wrought most skillfully in tent-stitch on fine canvas with silk thread of lovely tones. Three critical moments in Abraham's life are pictured; his hospitality to the three Angels who foretell that Sarah will bear a son in her old age (the skeptical Sarah laughs in the doorway); his shamefaced casting off of Hagar and the little Ishmael at Sarah's behest, and his sacrifice of Isaac, mercifully averted on the downstroke by the Angel of the Lord. How Hagar and Ishmael fared in the wilderness, and the timely arrival of the busy Angel to direct them to a well, is shown in the distance. The characters move in the rural vicinity of a great castle. Another needlework version of Abraham's banishment of Hagar is shown in Fig. 25, a picture in the collection of Mrs. Myron Taylor. It is one of a great many of the same subject in which the figures are recognizably alike, set in varied landscape arrangements. In the *Thesaurus Sacrarum* the story of Abraham is told in six pictures, engraved by Gerard de Jode after Martin de Vos, ending with the meeting of his steward Eliezer and Rebekah at the well. Four of these prints are shown in Figs. 26, 27, 28, 29, for comparison with the embroideries and for the piece following as well. This is a remarkably fine picture, worked in tent-stitch with polychrome silks, portraying the fair Rebekah letting down her pitcher to the thirsty Eliezer (Fig. 30), also owned by Judge Untermyer. The refined figures of the tableau in the foreground are the ones identifiable with the engraving. The popularity of Martin de Vos' version of this subject is evident in many seventeenth century embroideries.

[2] From a copy in the Spencer Collection, New York Public Library.

FIG. 22

THE JUDGMENT OF SOLOMON. NEEDLEPOINT PICTURE, XVII CENTURY.
THE FITZWILLIAM MUSEUM, CAMBRIDGE, ENGLAND.

FIG. 23

THE JUDGMENT OF SOLOMON.
ILLUSTRATION OF ENGRAVING BY B. A. 'A BOLSWERT (1580-1634) AFTER RUBENS.
LA BIBLE DE PIERRE PAUL RUBENS, BY E. FETIS, BRUSSELS, 1877.
THE BOSTON PUBLIC LIBRARY.

FIG. 24

SCENES FROM THE STORY OF ABRAHAM. PETIT-POINT PANEL, MID-17TH CENTURY. COLLECTION OF JUDGE IRWIN UNTERMYER.

FIG. 25

HAGAR AND ISHMAEL BANISHED BY ABRAHAM.
NEEDLEPOINT PICTURE, MID-17TH CENTURY.
COLLECTION OF MRS. MYRON C. TAYLOR.

FIG. 26

ABRAHAM AND THE THREE ANGELS.
ENGRAVING BY GERARD DE JODE (1521-1591) AFTER MARTIN DE VOS (1531-1603).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 27

ABRAHAM BANISHES HAGAR AND ISHMAEL.
ENGRAVING BY GERARD DE JODE (1521-1591) AFTER MARTIN DE VOS (1531-1603).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 20

THE SACRIFICE OF ISAAC.
ENGRAVING BY GERARD DE JODE (1521-1591) AFTER MARTIN DE VOS (1531-1603).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 29

ELIEZER AND REBEKAH AT THE WELL.
ENGRAVING BY GERARD DE JODE (1521-1591) AFTER MARTIN DE VOS (1531-1603).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 30

ELIEZER AND REBEKAH AT THE WELL.
NEEDLEPOINT PICTURE, MID-17TH CENTURY.
COLLECTION OF JUDGE IRWIN UNTERMYER.

FIG. 31

CALEB AND JOSHUA WITH THE GRAPES OF ESHCOL.
EMBROIDERED PANEL, MID-17TH CENTURY.
COLLECTION OF SIR FREDERICK RICHMOND, BART.

FIG. 32

CALEB AND JOSHUA WITH THE GRAPES OF ESHCOL.
ENGRAVING BY GERARD DE JODE (1521-1591) AFTER MARTIN DE VOS (1531-1603).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

Figs. 31 and 32 are spirited scenes in both embroidery and engraving of the exultant spies, Caleb and Joshua, returning from the land of Canaan, bearing the grapes of Eshcol. The interesting panel is in Sir Frederick Richmond's collection, the print is another engraving by Gerard de Jode after Martin de Vos.

Few stories in Holy Scripture provided more lively entertainment for a skillful needle, as surviving embroideries testify, than that of King David and Bathsheba, running its eventful course of broken commandments and repentance. Many of these representations, wrought in tent-stitch and in stump-work, seem like the preceding examples to have been adapted from prints found in the *Thesaurus Sacrarum*. One, a handsome needlework picture in the collection of Mrs. Edsel B. Ford (Fig. 33), illustrates the beginning of the drama, David's first sight of Bathsheba washing herself in the garden. The designer has followed the engraving by de Jode (Fig. 34), quite closely, including architectural details of background and fountain, and has rendered the pleached bower with faithful trimness. It is a lovely setting for Bathsheba's fair charms, and David's admiration and urgent desires are immediately expressed by letter in the hand of his messenger. In Judge Untermyer's fine embroidered panel (Fig. 35), further chapters in the story are illustrated by essential figures picked from other engravings of the series (Figs. 36, 37, 38). The bathing scene in this instance has been reduced to simpler terms of balcony, pool and one fruitful vine. In the left foreground Uriah the Hittite, Bathsheba's husband, kneels before the perfidious David, who is wickedly contriving to remove him from his path. In the upper background on the right, forced to the forefront of the hottest battle by royal command, the betrayed Uriah is slain. Rebuke and repentance are in process in the right foreground, where Nathan, by subtle parable of the ewe lamb brings David to contrition and remorse.

The meeting of David and Abigail, Susannah and the Elders, Esther before Ahasuerus, are other themes found in embroideries that relate to prints in the *Thesaurus Sacrarum* of de Jode, but space does not permit, and it would be monotonous to illustrate with further examples, the many derivations recognized from this particular collection of engravings. Ostensibly, any seeker for the model of a Scriptural subject in Stuart embroidery should first look there, or in the similar collection by Claes Jansz Visscher.

The very ornamental Tudor valance depicting Belshazzar's impious feast (Fig. 39), owned by Sir Frederick Richmond, is shown with the

FIG. 33

DAVID AND BATHSHEBA. EMBROIDERED PICTURE, MID-17TH CENTURY.
COLLECTION OF MRS. EDSEL B. FORD.

FIG. 34

DAVID AND BATHSHEBA. ENGRAVING BY GERARD DE JODE (1521-1591).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 35

THE STORY OF DAVID AND BATHSHEBA. PETIT-POINT PANEL, MID-17TH CENTURY.
COLLECTION OF JUDGE IRWIN UNTERMYER.
(CENTER) BATHSHEBA BATHING. (LOWER LEFT) KING DAVID AND URIAH, THE HITTITE.
(UPPER RIGHT) URIAH IS SLAIN IN BATTLE. (LOWER RIGHT) NATHAN REBUKES DAVID.

FIG. 36

KING DAVID AND URIAH, THE HITTITE. ENGRAVING BY GERARD DE JODE (1521-1591). THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585. FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 37

URIAH IS SLAIN. ENGRAVING BY GERARD DE JODE (1521-1591).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 38

NATHAN REBUKES DAVID. ENGRAVING BY GERARD DE JODE (1521-1591).
THESAURUS SACRARUM HISTORIAE VETERIS TESTAMENTI. G. DE JODE, ANTWERP, 1585.
FROM A COPY IN THE SPENCER COLLECTION, NEW YORK PUBLIC LIBRARY.

FIG. 39

THE FEAST OF BELSHAZZAR. TUDOR VALANCE.
COLLECTION OF SIR FREDERICK RICHMOND, BART.

FIG. 40

THE FEAST OF BELSHAZZAR.

BYBEL PRINTEN, AMSTERDAM, 1650.

ENGRAVING BY MATTHEW MERIAN (1593-1650).

FROM A COPY IN THE NEW YORK PUBLIC LIBRARY.

accompanying engravings to demonstrate one of the problems that besets the searcher for a design source. A print from the Dutch *Bybel Printen*, Amsterdam, 1650, with illustrations by Matthew Merian (1593-1650) (Fig. 40), in spite of variations, at first seemed enough like the embroidery for its consideration as a possible model. The later discovery, however, of Fig. 41 in a Restoration Bible of 1660, from an engraving by Johannis Muller (1570-1625), was so much closer that Matthew Merian's print had to be discarded. Merian, being twenty-three years younger than Muller, may have borrowed from the latter for his composition of the feast. On the other hand they may both have drawn from another source not yet identified. Such uncertainty spurs one to further efforts in the search for priority, and emphasizes that the end of the trail should never be claimed without crossed fingers.

FIG. 41

THE FEAST OF BELSHAZZAR.
ENGRAVING BY JOHANNIS MULLER (1570-1625).
THE HOLY BIBLE, JOHN FIELD, CAMBRIDGE, 1660.
HOFER COLLECTION, HOUGHTON LIBRARY, HARVARD UNIVERSITY.

EMBROIDERIES OF SCRIPTURAL SUBJECTS IDENTIFIED WITH ENGRAVINGS IN THE *THESAURUS SACRARUM*, OF GERARD DE JODE, ANTWERP, 1585

ABRAHAM AND THREE ANGELS

Picture, Collection of Judge Untermyer (includes ABRAHAM AND HAGAR, and the SACRIFICE OF ISAAC).

Picture, Collection of Mrs. Myron C. Taylor (includes ELIEZER AND REBEKAH).

Picture, Victoria and Albert Museum, *Catalogue of English Domestic Embroidery*, 1938, Pl. XXIX (includes the SACRIFICE OF ISAAC).

SACRIFICE OF ISAAC

Elizabeth Calthorpe's sampler, 1656, *Samplers*, Leigh Ashton, London, 1926, frontispiece.

Picture, Collection of Judge Untermyer.

Picture, *Connoisseur*, Vol. 54, "Stuart Embroideries at Chequers," E. Gibson, p. 85.

Valance, Anderson Galleries, No. 90, *Catalogue Le Fortier Sale*, Nov. 1937.

ABRAHAM AND HAGAR

Panel for looking-glass, Victoria and Albert Museum, *Catalogue, 1938*, Plate XXXV (b).

Picture, Victoria and Albert Museum, *Catalogue, 1938*, Plate XXX (a).

Picture, Collection of Judge Untermyer.

Picture, Collection of Mrs. Myron C. Taylor.

Picture, Collection of Mrs. Lathrop C. Harper.

Picture, Collection of Ginsberg and Levy.

Picture, *Samplers and Tapestry Embroideries*, Huish, London, 1900, Plate XL.

Picture, *English Secular Embroidery*, M. A. Jourdain, London, 1910, p. 134.

Picture, *English Embroidery*, A. E. Kendrick, London, 1904, Plate LI.

Picture, *Domestic Needlework*, Seligman and Hughes, London, n.d. Plate 76 (b).

Picture, *Connoisseur*, Vol. 68, March, 1924, p. XX.

Picture, *Connoisseur*, Vol. 78, May, 1927, p. XX.

Picture, Catalogue, *A Collection of Old English Needlework*, Frank Partridge & Sons, Ltd. London, 1934, No. 25.

ELIEZER AND REBEKAH

Picture, Collection of Judge Untermyer.
Picture, Metropolitan Museum of Art, New York, N. Y.
Picture, *Connoisseur*, Vol. 81, May, 1928, p. LXIII.
Mirror frame, Collection of Frank Partridge & Sons, Ltd., New York.
Cabinet top, Victoria and Albert Museum, *Catalogue, 1938*, Plate XXXVIII.

BALAAM AND HIS ASS

Picture, Collection of Mrs. Myron C. Taylor.

DAVID AND ABIGAIL

Picture, Collection of Judge Untermyer.

DAVID AND BATHSHEBA

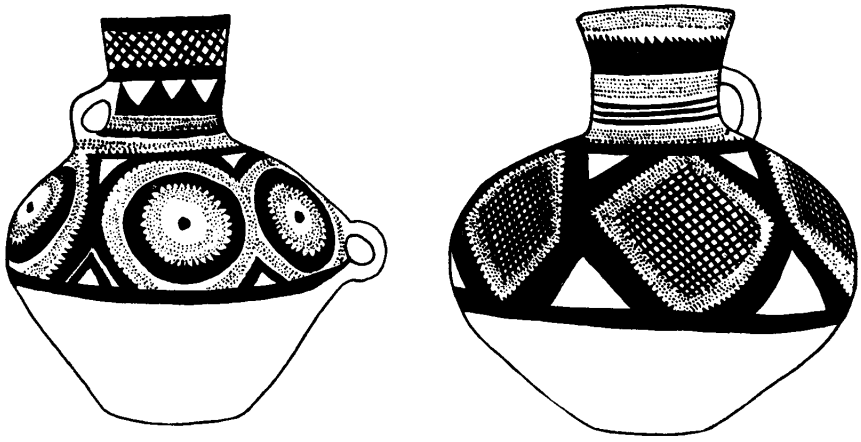
Picture, Collection of Judge Untermyer.
Picture, Collection of Mrs. Edsel B. Ford.
Pictures, Museum of Fine Arts, Boston, Elizabeth Day McCormick Collection (2).
Picture, *Domestic Needlework*, Seligman and Hughes, London, n.d. Plate 76 (A).
Picture, Parke-Bernet Catalogue, Mrs. Luke V. Lockwood Sale, Nov., 1942, No. 57.
Picture, Victoria and Albert Museum, *Catalogue, 1938*, Plate XXX (b).
Picture, Victoria and Albert Museum, *Picture Book of English Embroideries*, Part II, Stuart, No. 11.

ESTHER AND KING AHASUERUS

Picture, Collection of Judge Untermyer.
Picture, Collection of Mrs. Myron C. Taylor.
Picture, *Connoisseur*, Vol. 76, December, 1926, p. XLIX.
Picture, *Connoisseur*, Vol. 80, April, 1928, "British Antique Dealers' Assoc. Exhibition," No. XIV (dated 1654).
Picture, *Antiques Magazine*, "A Sequence of Early Needlework," Celia Woodward, Fig. 8, Vol. IX, Apr., 1926.

SUSANNAH AND THE ELDERS

Picture, Collection of Judge Untermyer.
Picture, *Connoisseur*, Vol. 87, May, 1931, p. XIII.
Picture, *Connoisseur*, Vol. I, Nov., 1901, "A Collection of Needlework Pictures," Mrs. Head, No. X.



A B

FIGURE 1

TWO PAW-SHAN WARE PAINTED JARS FROM NORTHWEST CHINA, MIDDLE OF THE 3RD MILLENIUM B.C., SHOWING DESIGNS IMITATING APPLIQUÉ WORK.

EARLY TEXTILE PRODUCTION IN CHINA

By PHYLLIS ACKERMAN *

THE cultural history of China is today coming into the third phase through which it has passed since it first engaged the organized efforts of Western scholars about a century ago. Initially, the tendency was to take literally Chinese traditional accounts of their own early developments. A negative reaction followed, largely under the influence of Germanic pseudo-science, "*Methode*," that false research technique which has sterilized so much work in the humanities during the last six or seven decades; for this usually involves, as one of its various fallacies, the assumption that mere rejection can be substituted for criticism, though that should be evaluative and constructive. This typically arrogant device for the evasion of fundamental problems and genuine intellectual methods has been an important factor in the recently completed suicide of the Germanic civilizations. Now at last, as we all too slowly free ourselves from German influences in humanistic studies, the value of Chinese traditions is being increasingly and truly critically reaffirmed.

Outstanding amongst the recoveries incident to this long overdue liberation from Germanic superficialities is the reinstatement by extensive further cultural historical research of the brilliant and basic contribution of L. de Saussure to the history of early Asiatic religion.[1] De Saussure, developing prior work of the famous French sinologist Biot, defined the polaric cult, which the first metallurgists evolved from observations of the constellations circling about Polaris and disseminated as their craft religion, both exoteric or public, and esoteric or secret and usually more or less mystical. Moreover, calculating from the astronomical data, de Saussure estimated that the system was formulated prior to 3,000 B.C. and transmitted to China in the twenty-fifth century B.C. West Asiatic

* The contents of this article are, in large measure, a by-product of work for a monograph: *The Craftsman in Asia,* in preparation, with a grant-in-aid from the American Philosophical Society.

archæological material, now rendered comprehensible by means of de Saussure's insights, confirms the former conclusion; the painted pottery found in Kansu and West Honan,[2] dated by internal evidence from the middle to the end of the third millennium B.C., equally confirms de Saussure's understanding and dating of the Chinese branch of the cult, for this, also, with other related archæological material, yields on analysis a consistent complex of polaric elements.

And this mutually substantiated chronology provides, in turn, probable authentication for one of the traditions tenaciously maintained by the Chinese themselves—though for a time likewise subjected to the pseudo-critical negativity of *Methode*—that the silk textile craft was initiated in the middle of the third millennium B.C.; for certain classes of the painted pots show ornament clearly copied from needlework which could have been executed only in a fine, soft material;[3] and as "grass" and bark-fiber cloths are the only other ancient woven materials of Far Eastern Asia—wool not having been used, and cotton not brought in until many centuries later—the indications point almost conclusively to silk.

Specifically, the Chinese story goes—and Chinese traditional history is very specific—that the silk culture and craft were introduced by Hsi-ling Shih, consort of Hsuan Yuan,[4] known as Huang Ti, the Yellow Emperor. This ruler was the first of the Five Sovereigns and therefore generally accounted in the tradition the first true sovereign of China, though he was preceded by the Three August Ones (Fu-hsi, Nü-kua—or the two together—followed by Chu-jung and Shen-nung), type-figures, part ancient divinities, part culture-heroes.

Huang Ti, whose reign dates are put at 2698-2598 B.C., or by an alternate and more satisfactory calculation at 2491-2448 B.C., is credited with the introduction of various new resources such as carts, and bows and arrows and other innovations consistent with the culture which produced the painted pottery. Furthermore, he is regarded by the Taoists as the founder of their religion,[5] which is a reformed version of the polaric cult. Thus their tradition accords with de Saussure's calculation, and both coincide with the archæological evidence.

One style of this painted pottery, called Pan-shan ware from the center round which the bulk of the examples has been found, is characterized by patterns representing well-evolved needlework, possible only with good-quality textiles. For many of the designs are unmistakably adapted from quite elaborate appliqué-work. The appliqué motives on the textiles used as models had been sewn with parallel rows of running stitch

at some distance in from the edges. These were left free and either pinked or fringed, a skilled means of obviating fraying without involving the clumsy effect unavoidable with a hem (Figure 1).

The utilitarian source of this purely ornamental appliqué is traceable likewise on the pottery, for a considerable series of these painted pottery vessels have been copied from leather bags—bulged by the pressure of liquid contents—made with seams reenforced by laying over each a broad panel, stitched at either side and also multiple-stitched above the seam to strengthen and tighten it.[6] That the panels applied for this practical purpose did give rise to the idea of ornamental appliqué is somewhat supported by the circumstance that the cloth appliqué, in turn, affected the leather reenforcing panels, for these also are shown pinked, though there was, of course, no fraying problem with leather.

Other pots show appliqué bands connected with straight faggoting, or appliqués of net, very wide-meshed, edged with pinked or fringed cloth. Still other pots "wear" on their shoulders a "cape" of net, similarly edged and cut in deep-fringed lobes, while actual capes of this same type are likewise shown on pottery busts crudely modeled in the round, and painted, originally used as vessel-covers. The dressmaking skill implied by these fancy garments is also, though less directly, reflected by tiny well-made buttons, chiefly marble, found with some of the pottery;[7] and suitable to such needlework are the comparatively fine bone needles recovered on some sites.

A silk cocoon, excavated with neolithic remains, had been cut in half —some consider deliberately—implying the existence of the industry at the period; but others doubt the evidence.[8]

Other early or primitive instances of appliqué work are more or less significant, in connection with this evidence for its ancient use in China. The Pazyryk material,[9] usually dated somewhere between the fifth and third centuries B.C., includes felt appliqué, with naturalistically shaped feline heads, a convention so sophisticated as to render probable a considerable prior development. A bronze plaque of about this same period, from the Ordos region, in the possession of C. T. Loo and Company [10] (Figure 2), reproduces in its style all-over heavy-cord appliqué (*i.e.*, couching); and the Noin Ula material, datable at the turn into the Christian era, includes a quilted woolen carpet with comparable animal motives executed in this solid couching.[11]

The Ainu, the non-Mongolian people, who have lingered on in Japan —chiefly confined now to Hokkaido—decorate their ceremonial gar-

FIGURE 2

CAST BRONZE PLAQUE FROM THE ORDOS REGION. *c.* 6TH CENTURY B.C. IMITATING CORD APPLIQUÉ (COUCHING). COURTESY OF C. T. LOO & CO.

ments with elaborate abstract motives in appliqué.[12] The materials now used are Japanese, as is probably the cut of the garment, but the style of decoration is distinctive and consistent and seems to be their own. The Ainu economy today corresponds to a very early neolithic phase, pre-agricultural, pre-pottery, with only wood and bark vessels, but with bark-fiber weaving and the domesticated dog. Their religion is a primitive polarism. But whether this economy is a reversion or a retention is ambiguous, for some at least of their number learned to make pottery round the turn of the Christian era and persisted in the craft until a century or so ago.[13]

Finally, Esquimaux trim women's fur garments, especially, with dyed-leather appliqué, sewed with sinews and a bone needle. Their economy is essentially late palæolithic (Magdalenian).

Meanwhile, in the late Shang period (*c.* 1300 B.C.) there are traces, noted by Miss Vivi Sylwan, of silk patch-work.[14] This is technically and æsthetically a poor relation of appliqué, but these indications of the long prior history of appliqué may answer Miss Sylwan's query: "Are there ancient traditions behind the above-mentioned Chinese custom or cult or have the Chinese taken it from their nomadic neighbors and adapted it to their own specific material, silk." Since there are other lines of ideational continuity between the painted pottery and basic elements of Shang culture, there may well have been continuity in the technique of combining small shaped textile pieces to attain a decorative effect, and the nomadic uses of the various forms of this technical conception may well have been collaterally developed.

Numerous spinning whorls are found with this style of painted pottery but these are so heavy that they would have sufficed only to make yarn for coarse cloth; and similar coarse cloth (in addition to matting) is imprinted on many potsherds. Silk, however, was sometimes used by the Chinese of the Shang period, and doubtless earlier, as reeled from the cocoon, unspun;[15] and when spun, as it was also in the Shang times, not whorls, but the twirling stick method was used, and this was so well developed by this time in the Middle East, that the spindle was sometimes made of bronze, beautifully wrought and carefully weighted.[16]

The standardization of the "three kinds of silk" is attributed to the Emperor Yao,[17] whose reign is put at about 2357-2256 B.C., just prior to the Hsia dynasty (2205-1766). These "three kinds of silk" were among the articles which nobles had to bring with them as ceremonial presents for the King in order to gain audience, and they seem to have

been three colors rather than three qualities of silk, in the judgment of later Chinese commentators. If so, the statement probably means that this was when dyeing was introduced; for Chinese religious tradition, very conservative, retains a well-marked memory of that technical event, implying an established silk-craft prior to a knowledge of dyes.[18] The third millennium immigration from the West was not singular, judging from well-marked differences in pottery styles, but at least quaternal and probably sequential. Dyeing had long since been practiced in the West, and a small group of craftsmen included in a population movement would have been sufficient to bring the knowledge to China.

According to the Chinese the Hsia was the first of their dynasties, but this is still pooh-poohed by conventional Western scholars who have not yet become critical of automatic negativisms, despite the fact that they likewise rejected the next, Shang dynasty, until archæological proof brought them embarrassment, though all too little repentance. What purport to be, and could be, specifications of Hsia tribute levies show widespread and varied textile production. For instance,[19] Yu Chow (comprising Honan and the department of Yun-Yang in Hupeh) is said to have sent "hemp, a finer hempen cloth, and coarser hempen cloth . . . fine silken fabrics, and fine floss-silk." From Yung-Chow (the north of Shensi and Kansu) came hair-cloth. This was a backward region. Ts'ing-Chow (T'ae-shan) sent "fine grass-cloth [made of *Dolichos tuberosus* fibers] . . . silk, hemp," while wild tribes brought in "silk from the mountain mulberry," which provided a diet that caused the worms to produce a tough fiber suitable for lute-strings.

Silk production in the late Shang period is documented by finds at An-Yang, the site of the last Shang capital, notably actual silk fibers, and possible references to the material in "oracle-bone" inscriptions,[20] while at least two bronzes have preserved in the surface deterioration traces of five fairly fine textiles in which they had been wrapped.

Three of these, all excellently analyzed and reported by Miss Sylwan, are cloth-weaves:[21] a plain, loose, medium fine cloth, with warps to wefts in, roughly, a 4:3 proportion (*i.e.*, *c.* 40, 30 to the cm., respectively), both of unspun silk as reeled from the cocoon; and two reps, one nearly twice as fine as the other and both with an approximate 2:1 warp-weft relation (*i.e.*, to the cm., respectively, *c.* 72:35, *c.* 40:17).

The other two are technically more complex and perhaps somewhat controversial, for they have been claimed as evidence of Far Eastern priority in twill weaving. One (designated as *B-C*, on a late Shang axe-

head [*ch'i*] from An-Yang, in the Stockholm Ostasiatiska Samlingarna), is described as "twill with a mixture of tabby weave. The twill scheme: under 1, over 1, under 1, over 3 threads, corresponds to tabby weave." It is hazardous to challenge such an obviously competent and experienced technical analyst as Miss Sylwan, and unfortunately she gives only a coordinate, not an analytical, graphic weaving scheme, but from this, the photomagnigraph and the verbal description, the fabric certainly seems to be not a twill but an approximately balanced cloth, two-thread warp and weft and extra untwisted (soft, flossy) weft(?), apparently alternating with the main weft(?) and floated over three to pattern—*i.e.*, compound fancy cloth (or if preferred, compound diaper), with the characteristic diaper pattern (accepting Miss Sylwan's somewhat tentative identification) of triple concentric lozenges. This is not a mere terminological difference, but really fundamental, a logical (or to be awkwardly accurate, a technical-logical) distinction. For twill is in conception a system of binding, but this, on the contrary, involves merely a system of floating, for a pattern, not for a structural purpose.

The other piece, reconstructed from traces on another late Shang bronze, an "urn," likewise from An-Yang, similarly is sketched as having the presumed twill weaving only as floats to pattern, in a succession of angles, on a vertical axis but of varying degrees. It is specified that there is no cloth weave, but the character of the remainder of the fabric is not clear, being indicated as uneven floats in the opposite (presumably warp) thread system.

In short, as this evidence now stands, there is still no reason for changing the statement that twill weaving is first found in West Asia, probably Syria, more than a thousand years after this.[22]

When descriptions of the textile industry in China first become available under the Chou dynasty (1122/1049—249 B.C.), production is entirely domestic. It is, however, professional, not only doubtless technically, but also economically, in the sense that it is the central business of the class mainly concerned. This is the peasant woman, for in the classical Chinese economy woven stuffs have been produced not as a branch of artisanry, but as the female aspect of agriculture.

The sex division of labor here is, moreover, complete, and that is characteristic of Chinese thinking; for in their religion is preserved, even into the present, that sharp dichotomy of the cosmic Power into male (originally sky) and female (in the first instance earth) which was the decisive advance of thinking in the neolithic period, incident to the development

of tillage and of animal-domestication, with consequent controlled breeding. This emphatic distinction between the sexes permeated the foundations of their life, and in the rural community involved even, as the work was organized, seasonal separation of domicile; for the fields were apart from the village, and during the intensive cultivation period each year the men moved out to temporary quarters on the land. Consistent with this sharp sex-division of labor, the women, unlike the women of almost every other known early, or early type of culture, did not do field-work.

Textile-fiber cultivation, on the other hand, was provided for in a sufficient plot of land immediately adjacent to each house.[23] There was the mulberry grove for the silk-worms; there, too, hemp was grown; while dolichos plants and trees, from which were obtained fibers for utility cloths, were evidently growing wild in communal lands where the women went to gather them, as they did various other fiber-plants, such as thistles and reeds.

In these early centuries there was evidently no specialized subdivision of work within the craft. We hear of farmers' wives and daughters cutting the fiber-plants or mulberry leaves, steeping and stripping the former, feeding the silkworms, reeling the floss, spinning, dyeing, weaving. There is no sign of departmentalization. The same workers carry through all the processes, and they are all women.

The clear division but interrelation of the two phases of domestic rural labor—textile production and agriculture—is epitomized in an astronomical myth still popular and repeatedly told by Chinese poets, especially in the T'ang period, of the Spinning Maiden and the Herd Boy.[24] Shih Nü, the Weaver Girl, today patron-goddess of women weavers and needle-workers, invoked by them to improve their skill, is Vega. Shên-hsien-t'ung, the Herdsman, her husband or lover, is Aquila. They are separated by the river of the Milky Way which she can cross (on a bridge of magpie wings) only one night a year: the seventh of the seventh moon.

The King, with his courtiers, and the Queen, with her ladies, ceremonially performed the same labors as their rustic subjects. This had a dual purpose: it accorded with the idea that the Sovereign, and through him his consort, represented a concentration of the cosmic Power, and by symbolically plowing a dedicated field, and raising silk,[25] respectively, they imparted that Power to these activities, thus assuring to them, throughout their domain, prosperity. But in the second place, they also set, thereby, examples for their people.

As the peasants paid taxes in grain, so their women paid it in lengths of stuffs. For the rest, each household was supposed to consume its own output, in both food and clothing products. Consistent with this, the textile arts were not by any means confined to the peasant class, but were the business of women on up through the social hierarchy. Thus, a girl of the official class, the Chinese aristocracy, in Kiangsi province in the late Han period (196-220) describes her education:

> "At thirteen I learnt to weave silk,
> "At fourteen I learnt to make clothes.
> "At fifteen I could play the flat harp," etc.[26]

And an account from the *Lî Kî* undoubtedly refers to a considerably earlier period: "A girl at the age of ten ceased to go out (from the women's apartments). Her governess taught her (the arts of) pleasing speech and manners, to be docile and obedient, to handle the hempen fibers, to deal with the cocoons, to weave silks and form fillets, to learn (all) women's work, how to furnish garments. . . ." [27]

But though thus a domestic usufacture, the craft was subject to some governmental regulations. Thus it was forbidden to cut indigo plants before they had reached a certain stage of maturity.[28]

The system, moreover, was already being compromised in the later Chou centuries. By the eighth century B.C. silk was being sold, for an *Ode* of that period recounts a girl's unfortunate marriage with a lad whom she had met when he came by her parents' home peddling silk.[29] And Chuang Chou (third century B.C.) tells of a man of Sung whose family had "for generations made the bleaching of silk their business." [30] The indication here of craft inheritance (common throughout Asia) as a tendency, though apparently not a prescription, also is interesting.

The disruption of both strict usufacture and of female domestic specialization was probably coincident with the development of merchandising, for a trading middle-class first begins to be evident in the late Chou period. In the Han period (206 B.C.-220 A.D.) commerce grew to such proportions that the Government became alarmed at the concurrent diminution in food supplies, and undertook to discourage trade. The merchant class was officially socially discredited, and sumptuary laws appear. But international channels had opened up, especially for textile products. Silk and silk stuffs were crossing the desert to Iran en route to Syria and

Rome. Profit spoke louder than derogation, and while domestic usufacture in this craft has not yet ceased in China, and women still work at it, bulk production has for centuries sustained professional male guilds which have in turn given way, during the last decades, in large part to Western industrialization.

NOTES FOR EARLY TEXTILE PRODUCTION IN CHINA

By PHYLLIS ACKERMAN

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2. J. G. Andersson, Preliminary Report on Archæological Research in Kansu, *Geological Survey of China, Memoirs*, Series A, No. 5, Peking, June, 1925; T. J. Arne, Painted Stone Age Pottery from the Province of Honan, China, *Palæontologia Sinica*, Series D, Vol. I, Fasc. 2, Peking (Geological Survey of China), 1925; Andersson, Children of the Yellow Earth, London, 1934; N. Palmgren, Kansu Mortuary Urns of the Pan Shan and Ma Chang Groups, *Palæontologia Sinica*, Series D, Vol. 3, Peking (G. S. of C.), 1934; G. D. Wu, Prehistoric Pottery in China, London, 1938.

3. Wu, *op. cit.*, XLIII, Nos. 8, 10, 11, 14, 16, 19-22, 24, 26, 28-30, 43, 44.

4. J. C. Ferguson, Chinese Mythology (The Mythology of All Races, VIII), Boston, 1928, p. 28; M. Granet, Chinese Civilization, London, 1930, p. 146.

5. *e.g.*, J. Legge (Trans.), The Writings of Kwang-Zze, VI. I. VI. 7, *Sacred Books of the East*, XXXIX, p. 244; XI. II. IV. 4, *ibid.*, p. 297; *idem*, Bamboo Annals, IV. XXX. 24, Chinese Classics, III, I, p. 140, and n. 11, p. 141.

6. *e.g.*, Andersson, in *Geological Survey*, Pl. I, 1a (there called, without consideration of technical implications, "death pattern"), Pl. IX, No. 1; p. 275, Fig. 124; Palmgren, *op. cit.*, Pl. XVII.

7. As was specifically noted by Andersson, Children of the Yellow Earth, p. 194.

8. H. G. Creel, The Birth of China, New York, 1937, p. 88.

9. L. Morgensterne, L'Exposition d'Art Iranien de 1935 à Leningrad et les Découvertes de Pasyryk, *Revue des Arts Asiatiques*, X, 4 (1937), pp. 199-210.

10. An Exhibition of Chinese Bronzes, New York, 1939, No. 139, Pl. XXX.

11. Camilla Trever, Excavations in Northern Mongolia, Leningrad, 1932, Pls. 8-11.

12. *V., e.g.,* J. Batchelor, The Ainu of Japan, London, 1892, pp. 27, 47; N. James, Petticoat Vagabond in Ainu Land, New York, 1942, Pls. op. pp. 120, 149, 167; M. C. Cole, F. C. Cole, The Story of Man, Chicago, 1940, pp. 342, 347.

13. I. Schnell, Prehistoric Finds from the Island World of the Far East, *Bulletin of the Museum of Far Eastern Antiquities,* Stockholm, IV (1932), pp. 16-58.

14. V. Sylwan, Silk from the Yin Dynasty, *Bulletin of the Museum of Far Eastern Antiquities,* Stockholm, IV (1932), pp. 125-126.

15. Sylwan, *op. cit.,* p. 123.

16. E. F. Schmidt, Excavations at Tepe Hissar, Damghan, Philadelphia, 1937, p. 137 (H. 2171), Pl. XXIX.

17. Shou-Ching, Canon of Yao, 5; *v., e.g.,* Lin Yutang, Wisdom of India and China, New York, 1942, p. 711.

18. P. Ackerman, Ritual Bronzes of Ancient China, New York, 1945, p. 100 A.

19. Legge (Trans.), Shoo King, *Chinese Classics,* III, 1, pp. 119, 127, 102. Transliterations follow Legge's now old-fashioned style, and the geographical identifications also are taken from him, and may subsequently have been re-examined.

20. Creel, *loc. cit.*

21. Sylwan, *op. cit.,* pp. 119-126.

22. It is, however, curious that, in reaffirming this, W. R. Pfister and Miss Louisa Bellinger (*in* The Excavations at Dura-Europos, Final Report IV, Part II, The Textiles, New Haven, 1945, pp. 2, 3) did not take any account of Miss Sylwan's work.

23. *e.g.,* Mencius III, 4; VII, 21: Lin, *op. cit.,* pp. 749-750, 756-7, 765.

24. E. T. C. Werner, Dictionary of Chinese Mythology, Shanghai, 1932, pp. 73-74; Lin. *op. cit.,* p. 975.

25. Lî Kî, IV. I. III. 12; IV. II. I. 19; XXI. II. 7: Legge (Trans.), *Sacred Books of the East,* XXVII, pp. 265, 271; XXVIII, pp. 223-224.

26. Arthur Waley, The Temple, New York, 1923, p. 113.

27. Lî Kî, X. II. 36: Legge, *op. cit., S.B.E.,* XXVII, p. 479.

28. Lî Kî, IV. II. II: *ibid.,* p. 274; *v.* also redyeing, p. 278.

29. Lin, *op. cit.,* pp. 876, 879.

30. The Writings of Kwang-Zze, II. I. I. 7: Legge (Trans.), The Texts of Tâoism, *Sacred Books of the East,* XXXIX, p. 173.

PLATE I-A
Woolen band from the author's collection.
Scale: ¾

COPTIC WOOL-WEAVES WITH PATTERNS IN UNDYED LINEN

By R. J. CHARLESTON*

NO CORPUS of material which has descended to us from ancient times has been more comprehensive than the mass of Egyptian textiles of the first Christian centuries which have made their way into Western museums. The wealth of the evidence which they provide for comparative study is bewildering. Yet the evidence, surpassing in quantity, is deficient in quality. It is an exasperating circumstance that among the mass of textiles which stuff our museums, scarcely any can be properly "placed" by the testimony of accurate archæological observation.[1] In default of archæological evidence, the remaining criteria left to the student of textiles are mainly those of technique and of style, and by far the greater part of these Egyptian textiles being executed in the tapestry technique, the student is mostly forced to considerations of style as the sole foundations of his thesis.

There are, however, certain classes of loom-woven textiles found in Egypt. Presumably by reason of their relative infrequency, they have tended to be neglected to the advantage of the tapestries, yet the unravelling of the technical tale they have to tell should throw light on the development of the loom in Egypt, a matter of no mean importance. For if this question were settled once and for all and the attribution of certain textiles finally established, their value as cultural documents would be enormously enhanced. There are, however, only four such classes known to the present writer—silk textiles,[2] a class of thick woolen fabrics probably used for furnishings,[3] twill weaves in wool or hair,[4] and a class of brocade weaves which it is proposed to consider in this article.[5]

These fabrics (Plates I and II) consist of woolen bands of varying widths, woven of blue or red wool with a pattern in undyed linen thread.[6] They were used as ornaments on the tunics which were the common wear in Egypt during the whole of the Christian period. They have often been stitched onto a tunic already decorated with tapestry bands,[7] and although this fact often provides us with a useful terminus *post quem*, we should beware of fixing too rigid a date for these pieces. The Egyp-

* Captain Charleston, who received his B.A. from Oxford University in 1938, has worked, in an honorary capacity, in the Nordiska and the National Museums in Stockholm, Sweden. At the time when this article was written he was stationed in southeast Asia at Headquarters of the Ceylon Army Command. (Ed.)

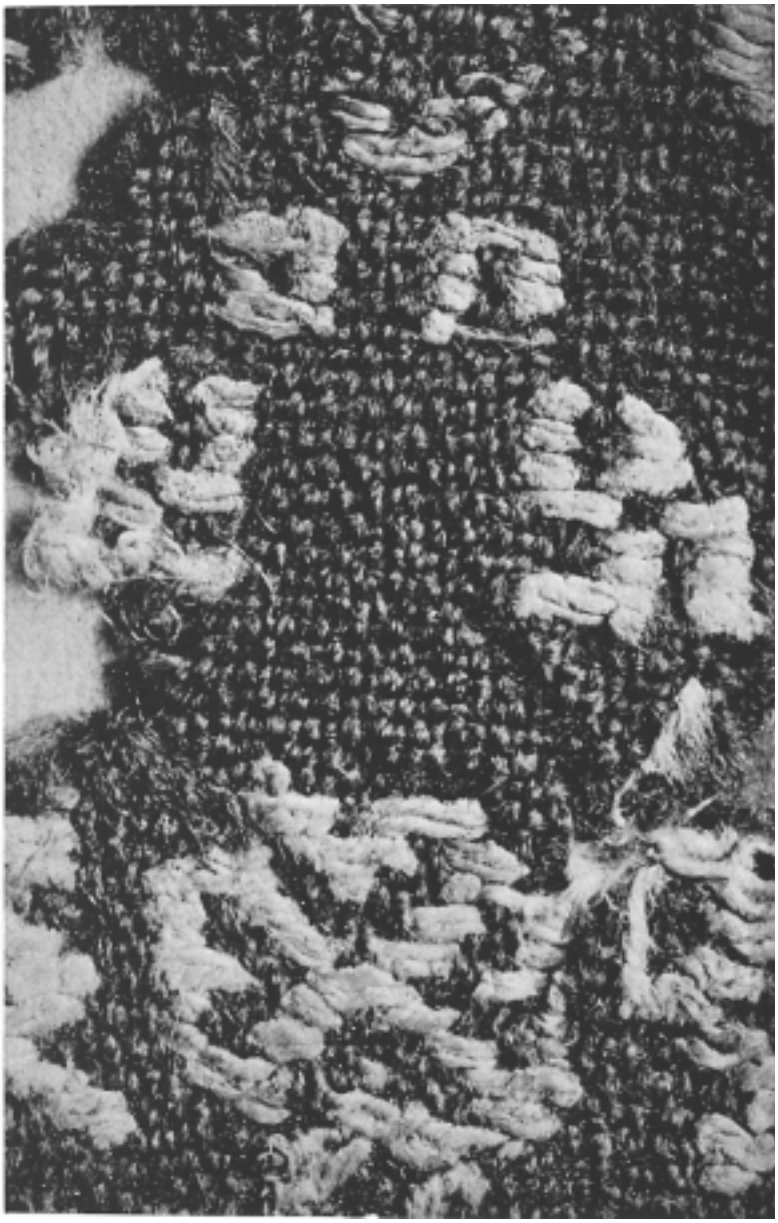

PLATE I-B

Detail of the textile, Plate I-A.
Magnified approximately three times.

tian appears to have been thrifty with his clothes, and an ornament of the type in question may well have been added to a tunic considerably older. But, in general, the testimony of the tapestries is well borne out by the fact that these bands form a style of decoration which falls late in the development of the Egyptian tunic.[8] They are used for shoulder-squares, at the tunic-hem, as cuff-bands, and seem in particular to have had a great vogue as decorations for the neck-opening, a part of the garment which at earlier dates was left undecorated. More conservatively, they were used for the *clavus* bands and were often woven especially into shape as roundels.[9]

As indicated above, they were woven with a pattern of undyed linen on a background of blue or red wool. Other specimens of a related type were woven in two or more contrasting colors of wool, but I have not had the opportunity of examining such pieces, and cannot therefore say whether they are technically, as they are without doubt stylistically, similar to the class discussed here. In two pieces in the Bankfield Museum,* however, green wool has been used, in one (No. 2, Plate II-A) both as a contrasting color border running in the warp direction and as a pattern weft emphasizing the central feature of the design; in the other (No. 12, Plate I-C) as an equal pattern-forming partner with the undyed weft.[10] The dye used for the blue wool appears to have been indigo.[11] The wool seems almost invariably to have been spun with an S-twist and doubled with a Z-twist, the undyed wefts invariably being spun with a soft S-twist.[12] The warps are, for the most part, two-ply, the wefts single-ply.[13] The colored woolen wefts of the ground are occasionally woven in pairs, the undyed pattern weft being invariably doubled or trebled in the pick. The fineness of the weaves varies considerably. In the pieces examined, the warp-count varied from 20-50 ends per inch, the weft-count from 20 picks per inch to as much as approximately 80 in Bankfield Museum No. 11 (Plate I-C), where the cloth has the appearance of a tapestry-weave, so closely is the weft beaten up. This, however, is exceptional, the average being approximately 25 per inch. Selvedges are usually normal, but occasionally two or more warp-threads are grouped together and bound by several turns of the weft-thread as it came to the edge of the piece.[14] In many cases it appears that the bands were woven in a larger piece and then formed by cutting down the edge of the pattern repeat. Thus Bankfield Museum Nos. 3 and 4 (Plate II-A) have a normal selvedge on one side, but are turned in and hemmed at the other.[15]

* Halifax, Yorkshire, England. (Ed.)

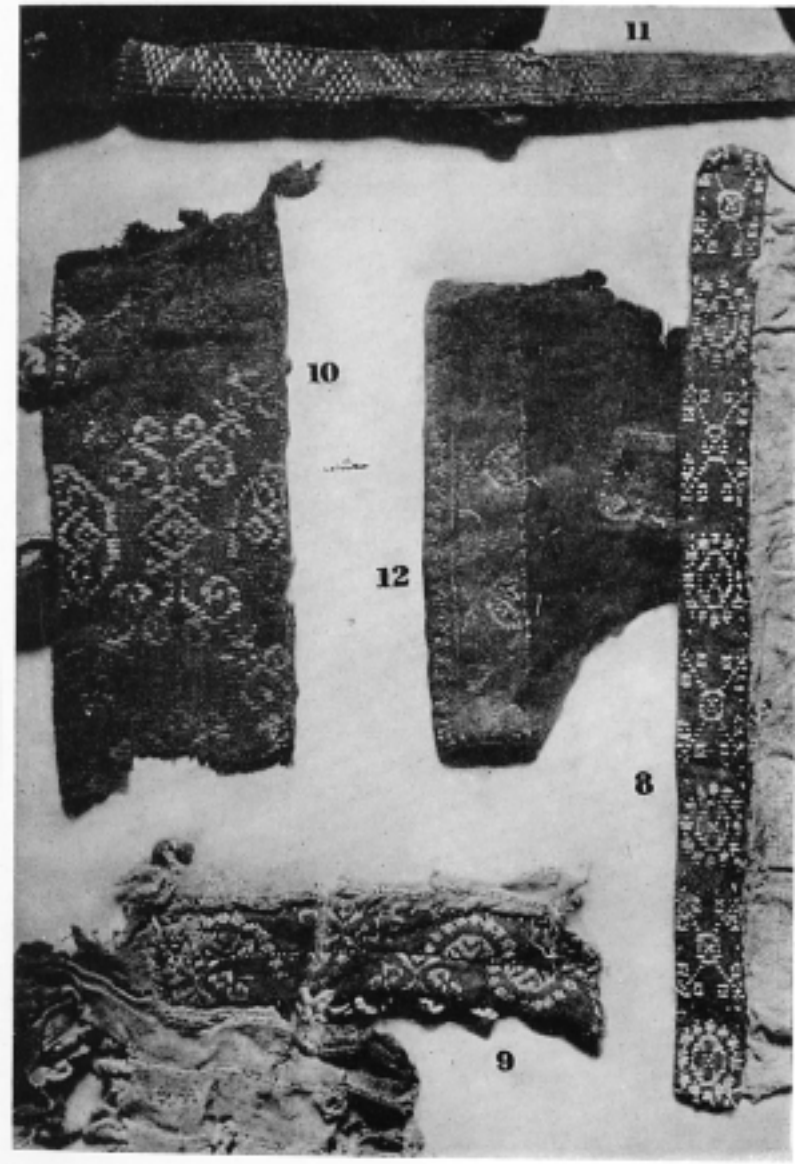

PLATE I-C
Woolen bands from the Bankfield Museum, Halifax, Yorkshire, England.
Scale: c. ½

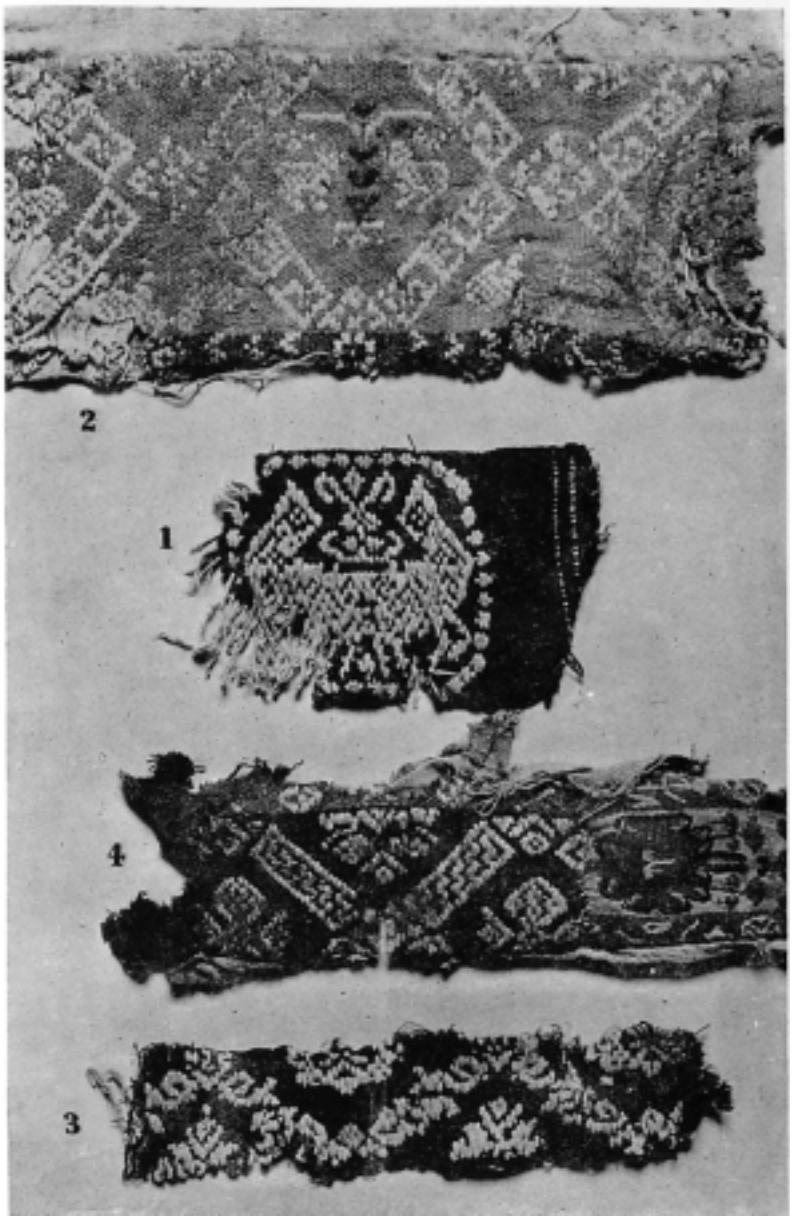

PLATE II-A

Woolen bands from the Bankfield Museum, Halifax, Yorkshire, England.
Scale : c. 3/8

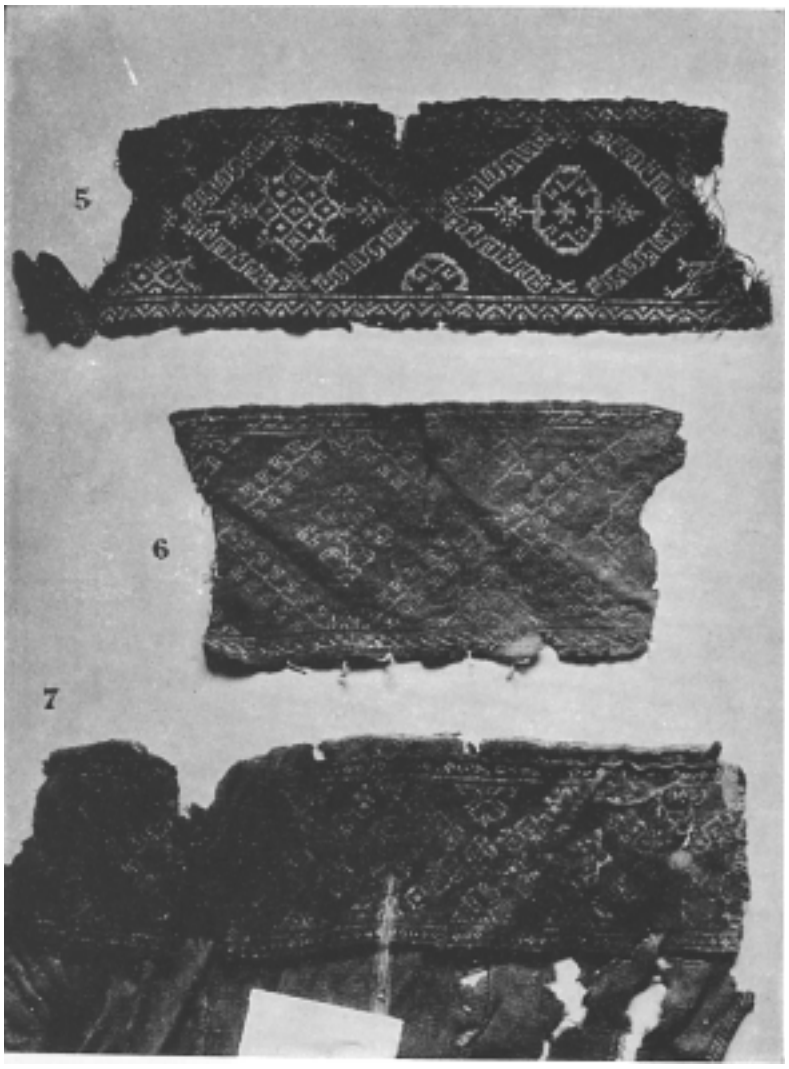

PLATE II-B
Woolen bands from the Bankfield Museum, Halifax, Yorkshire, England.
Scale: c. ⅓

In those cases where a group of colored warps is used to form a color-contrast at the edge of the piece, the weft threads continue straight across the piece. Thus in the body of the fabric, *e.g.*, red weft crosses red warp, at the edge red weft crosses green warp. From the point of view of pattern, however, these bands are treated separately, and usually form a border of small rosettes, checkers, etc.[16]

The weaving of these bands presents points of considerable interest and importance. I have been fortunate enough to be able to dissect in its entirety the piece shown in Plate I-A,B, and the resulting draft is shown in Fig. 1.[17] The general method of weaving was as follows. The ground is a plain weave of blue wool threads. In the patterned portions of the cloth every pick of the wool weft is followed by a pick of the linen pattern-weft. Between the pattern-bands three picks of wool weft run consecutively. The linen weft is brocaded, that is to say, it runs the breadth of the piece behind the cloth when not needed on the surface; the backs of these fabrics thus often reveal a mass of parallel linen threads.[18] At the limit of the pattern-pick the linen weft is secured either by the last warp over which it has passed if the next pattern-pick begins with a different warp, or by the next background-weft if the edge of the design follows the same warp (cf. Fig. 2, A & B). Throughout the fabric the pattern wefts invariably cross over an even number of warps before passing to the back of the cloth.[19]

The pattern is disposed over 58 warp-threads and is symmetrical about the two center warps. The pattern-repeat occupies 56 picks of pattern-weft and is a simple reversed design, lifts 30-56 being identical with lifts 2-28, but woven in opposite sequence.[20]

In dealing with the woolen "furnishing" fabrics mentioned on page 71, Mrs. Grace M. Crowfoot and Mrs. Joyce Griffiths [21] concluded that some of the weaves could have been made on a four-heddle loom resembling the modern hand-loom, but that the more complicated patterns would have required either more heddles or some draw-loom attachment; in any case, that a horizontal loom would be needed.[22]

How was our fabric woven and decorated?

There seem to be four possibilities, which may be discussed in ascending order of probability—embroidery, hand-insertion on the loom, heddle-weaving, and draw-loom weaving.

It is technically possible for the fabric to have been decorated by means of embroidery, but this possibility is, to my mind, quite precluded by the

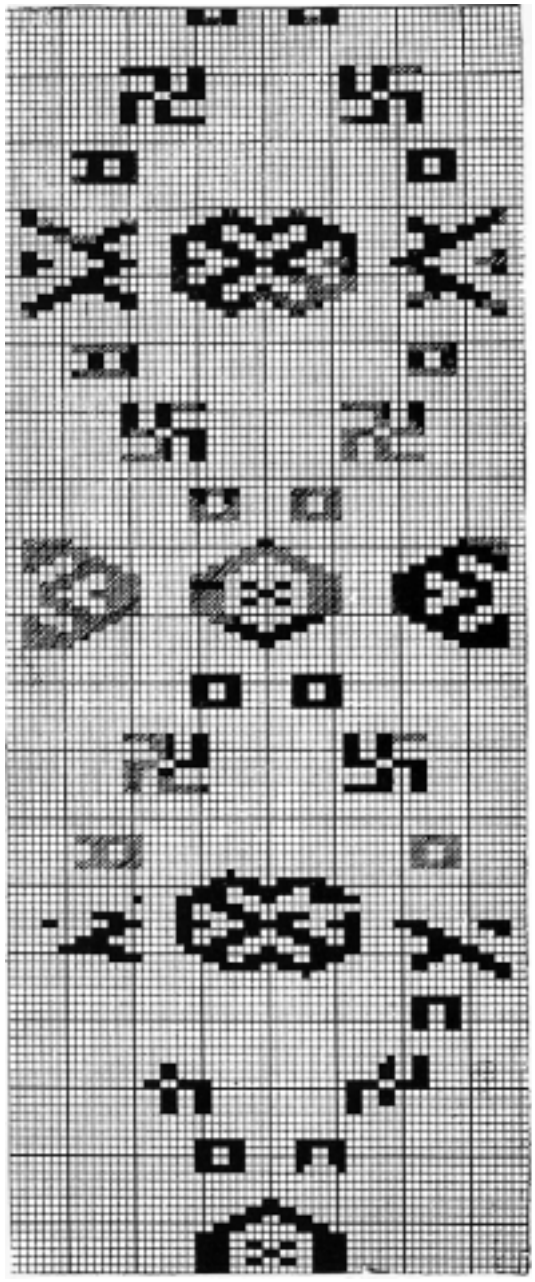

FIG. I

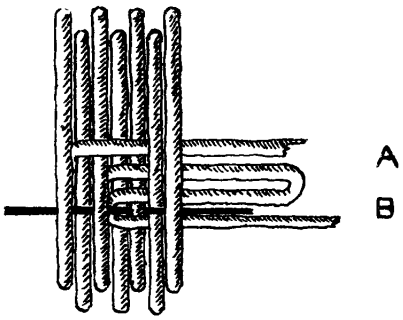

FIG. 2
Detail of weaving technique.

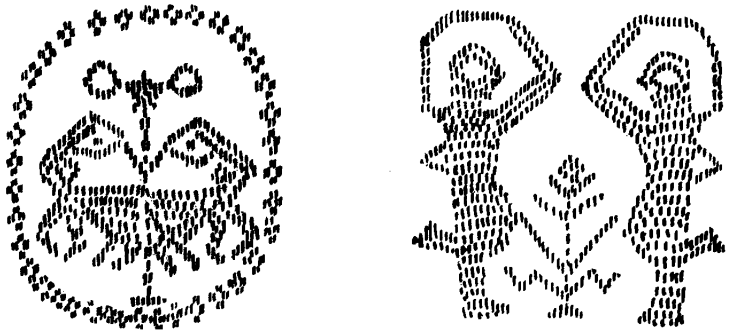

FIG. 3
Weaves with paired figures from Karâra.

facts, first, that never once in the whole dissection, involving some 200 wefts, was any blue background thread—warp or weft—split by the pattern thread, and secondly, that the pattern is formed of a normally coarse and uneven linen thread, usually doubled and sometimes even trebled, totally unsuitable for embroidery. Further, this would be an embroidery method involving an unparalleled extravagance of material (contrast the *palkari* work of Northern India, which contrives to cover great surface areas with long stitches, yet leaves scarcely a trace on the back of the material). Nor do I know of any embroidery in which the stitches slavishly follow the direction of the wefts of the background material, in entire disregard of the specific freedom of the needle to wander where it will. (See also note 18.)

It is equally possible to brocade by hand fabrics of this nature, but here again a close consideration of the cloth itself weighs heavily against a probability. In the first place, there is the heavy wastage of material. If one is weaving by picking out warps with the fingers or by a rod (and the number of *fixed* shed-rods employable in such a fabric would be limited), the natural tendency would be, in such close work, to use a separate bobbin or ball of thread for each unit of the pattern. Thus, for each of the little hollow-square motifs which follow the swastikas in the design, a separate bobbin would be used, with a consequent fourfold saving of thread—a not inconsiderable ratio. Secondly, if these braids are, as I think, cheap imitations for the many of the silk fabrics which were the prerogative of the few (see below, p. 85), quantity would be one of the aims of production, and quantity is not economically achieved by the methods more appropriate to tapestry. These braids were clearly sold by the yard and chopped into the lengths necessary for the recognized tunic-ornaments. Their patterns are exactly repetitive and smack of large-scale production. Lastly, and most significantly, our fabric reveals errors which to my mind could only arise in a method of weaving by which the pattern is fixed in the setting-up of the weave, and necessarily repeated in the same form throughout the length of the warp, any error in the setting-up being unavoidably perpetuated. A glance at Fig. 1 will illustrate my meaning. In the left-hand half of the pattern there is clearly something amiss. The swastika is not placed symmetrically to the pattern axis (*i.e.*, the axis running between the two central warps), and this displacement is carried on down [23] into the small hollow-square motif, and from there to the first three picks of the half-lozenge which occupies the outer elbow of the trellis. There it rights itself, and for

five picks of the pattern weft once more balances the answering pattern on the right-hand side, only thereafter to lapse into the prior error once again. This is not reasonable in a pattern put in by hand. If the weaver rectified his error in the middle of the motif, it is reasonable to suppose that he might continue the error in order to make that particular motif symmetrical; but would he then, being aware of a mistake, continue it right down his piece? The unlikelihood of this is heightened by the fact that something has clearly gone amiss with the hollow-square motif. It is not only asymmetrically placed: it is misshapen. What weaver, making such a mistake in the first pick, even if lazy enough not to go back and rectify it, would then repeat it in the fourth pick, and then, apparently, repeat the whole performance yet again in the corresponding motif further down the trellis? These errors, to my mind, make it almost certain that in fact a mechanical set-up was used.

This brings us to the third alternative—a heddle-weave on a loom resembling the modern hand-loom. We are forced to assume that for the setting-up of such a weave, the weaver must have had a pattern, and that pattern on point-paper, or something very much resembling it. For to work out such a set-up, it is necessary, generally speaking, to observe the behavior of each warp-thread throughout one repeat of the pattern, and to thread all warps of the same behavior in the one heddle. For this is not a weave of, say, the Swedish Rosengång type, in which the warps are entered in a repeated set sequence, and a number of patterns produced by variation in the order of depressing the treadles. Our textile is subservient to a pattern clearly not of a spontaneous textile growth.

One can only assume, further, that the pattern followed would be correctly drafted. If a pattern known to be susceptible of weaving on four heddles were drafted with one or two errors, and handed to a stranger for strict entering, he might find that he would require, for example, six heddles to weave it as it stood. In the case before us, it would take seventeen heddles [24] to weave the textile symmetrically, but twenty-five to weave it as it is. This is *reductio ad absurdum.* On the other hand, if the weaver worked from a correct, symmetrical, pattern, errors of entering would show up in an entirely different way. And, indeed, from the first sight, it is fairly obvious from the general nature of the material that we have here two separate systems—a two-heddle system for the background fabric, and a pattern-system—a state of affairs foreign to the heddle-weave as such.

Lastly, a draw-loom. It is clear that in the dual system before us the

warps used for pattern-building were controlled in pairs, and on first analysis it seemed as if the two outside pairs might be under a single control, the next pair under another, and so on until finally the two center threads would be left to a separate draw-cord of their own. Such a system would mean fifteen controlling cords and the possibility of weaving an indefinite number of patterns on the same warp by means of different combinations of draw-cord lifts. This possibility, however, is invalidated once more by the error of centering, which would then necessarily affect the central motifs, which are in fact symmetrical about the pattern-axis. It seems, therefore, that each pair of warps (excluding a pair at each selvedge over which no pattern is disposed) had its own draw-cord (*i.e.*, twenty-nine in all): that these draw-cords were pulled in groups for each pattern-lift and that these groups did not vary, *i.e.*, that the elements of the pattern were repeated mechanically throughout the fabric.[25]

If the conjecture proposed in the preceding paragraph be correct, it is not difficult to account for the errors of weaving which seem so fatal to the other propositions. For wherever the initial error occurred (probably with the swastikas, for in the open expanse of the cloth the lack of adjacent motifs would make the asymmetry less obvious), it would be carried on by the weaver running his eye down his draw-cords and harnessing that which lay in the required line judged from the previous motif. Thus, granted the error in the top swastika on the left-hand side, to start the next motif of the hollow-square the weaver would observe from his pattern that its right-hand edge lay on the same cord as the left leg of the swastika, and harness it accordingly, then work from that point to the two adjacent cords to the left (or three in this instance: it is possible here that the weaver, coming to the edge of his cloth, regulated the left-hand edge of this hollow-square by a count from the selvedge, but the point is difficult to decide: it is significant that this seeming slip marks the alignment where the edge of the motif would actually have fallen if no error had been made). The mistake would then be carried down as far as the central picks of the half-lozenge motif, where possibly the proximity of the central rosette on the one side and of the small pattern-filling (close to, and therefore possibly checked by, the selvedge) on the other, would make it as easy to work by centering as by the other method. The actual mistakes would probably appear only when the first repeat was run off,[26] and possibly by then it would be considered uneconomical to go back to correct the harnessing.

All these indications point to a state of industry in which a certain extravagance in materials was offset by the increasing output possible on a loom capable of mechanical pattern-production. If the services of a draw-boy were used, a considerable speed in weaving could be attained, the weaver beating up the pattern weft, and putting in and beating up the background weft, while the draw-boy sorted out his groups of cords for the next lift. The draw-loom which I have envisaged would, furthermore, be flexible in its pattern-production. By a rearrangement of the draw-cord groups almost any pattern of the same type could be produced.

Mr. A. F. Kendrick has observed "traces of the influence, in some of the later specimens, of the silk weavings from tunics of the 6th century," [27] an observation he had already foreshadowed in 1917 when discussing the silks found in Egypt.[28] There seems little question of the correctness of this view. An examination of certain silks found at Akhmîm and Antinoë, or preserved in the treasuries of some Western Churches, reveals an essential similarity with our pieces. They are characterized by diaper-patterns composed of various central motifs enclosed in lozenge-shaped frames of different types. Some are composed of a trellis of small designs (crescents, crosses, checkered squares, etc.), some of closed frames incorporating other such motifs, while some are formed of running scrolls of foliage.

The characteristics of these silks are closely reproduced in the woolen weaves. The first type is well represented by the piece shown on Plate I-A, whose swastikas and small squares may be seen in Figs. 9, 37 and 48 of von Falke's book,[29] the last two named also having as a central motif the four-petaled rose which appears on the wool-weave in question;[30] the lozenge device which appears at either edge of the wool textile is shared with a piece in the Michigan collection,[31] and may perhaps be derived from the central motif of V. & A. No. 580,[32] itself possibly a derivative of a pattern on a silk from Antinoë in the Berlin Kunstgewerbe Museum [33] which corresponds very closely to this piece in the general nature of its pattern, with its imbricated outline enclosing floral motifs. This fragment, too, by its use of reserves of pattern-color for the display of designs executed in the color of the main ground-weave, is strongly reminiscent of V. & A. Nos. 570, 578, 589,[34] the last-named of these having the same pattern repeated first in white on blue and then in blue on white. Furthermore, of these pieces, Nos. 578 and 589 both contain a star-device to be found in another Antinoë silk from Berlin.[35] The crosses and checkered squares of the Antinoë silk mentioned above (von Falke, Fig. 10),

are seen again, the former on V. & A. No. 574,[36] the latter on the piece shown on Plate I-A (in a slightly altered form). Again, the specimens V. & A. Nos. 570 and 585 display a motif of four springing stems very reminiscent of the pattern in white on blue of the Antinoë silk illustrated by von Falke, Fig. 14 (*cf.* also Bankfield Museum No. 8, Plate I-C). The heart-shaped device on the Michigan piece No. 194 is apparently derived also from the silks.[37]

The list of these similarities could be extended considerably, but scarcely without tedium. It remains only to be noted that the lozenge frame-device is continued in the wool-weaves, although the technique does not permit of rendering any small patterns other than simple cross-checker-, etc., designs,[38] and that the running-stem framework is equally inherited.[39]

The most intriguing branch of this family is one which departs entirely from the diaper tradition. There are two representatives of the type illustrated in German books. The first[40] displays two horse-like animals grouped about a central plant-motif, their heads turned back over their shoulders, with each a bird crouched beneath its feet. Curious hook-like projections protrude from their necks and chests, heart-shaped and quatrefoil patterns mark the joints of hind- and fore-legs, and over their quarters hover curious shapes which might be intended for wings. The whole group is surrounded by a roundel formed by plant-scrolls. There are two identical roundels on the fragment, and the pattern is rendered mainly in white on a red ground, the central motif only being in green and yellow.[41] The second of these pieces is from a grave at Karâra and was found by the German expedition of 1913-14 (Fig. 3, page 79).[42] Here two similar animals face *toward* a central plant-form, there are no birds, and the "wings" are replaced by a circle floating in the air. The roundel is composed of a series of small checkers reminiscent of *e.g.*, V. & A. No. 585.[43] What renders it remarkable is the presence in the pattern-repeats of pairs of dancing girls, extraordinarily well rendered in view of the limitations of the technique, and vividly reminiscent of tapestries some hundreds of years older.[44] The resemblance between these pieces and those from Bankfield (Nos. 1 and 2; Plate II-A) needs no emphasis. In particular it should be noted that No. 2 employs a green wool for the rendering of the central plant-motif, just as does the Berlin piece, that the rendering of No. 1 is very like that of the Berlin piece, and that the roundel-frame of No. 1 is identical with that of the Karâra textile. All these patterns are woven at right angles to the warp.[45]

There is in the Victoria and Albert Museum a silk of an unique type [46] representing a pair of stags (?) grouped on either side of a plant-form springing from a vase, their heads turned back to nibble at the branches of foliage which project back past their shoulders. Beneath their feet appear two hare-like animals, the whole design being surrounded by a hoop of plant-forms. The resemblance with the wool-weaves is considerable, and it seems reasonable to think that here, too, the progenitors of the family are to be found in the silk-weaves.

The silks found in Egypt are variously ascribed. The diaper types described above were found mainly at Antinoë. Their manufacture has been ascribed by von Falke,[47] basing his argument on the similarity between these patterns and those shown on the Greek classical vase-paintings, to the place in which they were found, although he points out that other pieces in *e.g.*, Western Church Treasuries, may well have been woven in any Hellenistic center such as Alexandria. A. F. Kendrick,[48] following J. Strzygowski and basing his arguments on the Oriental qualities often found in the silk-designs, would attribute them to Syria and the western parts of the then Persian Empire.

Whichever view is correct (and their production would seem to have been possible in any large Hellenistic center which was in contact with Oriental influences), these silks were clearly articles of trade among the richer members of communities throughout Egypt, and undoubtedly the object of much admiration, as the sedulous imitation of them among the later tapestries indicates.[49] Nobody has attempted to deny these tapestries to Egypt, and there seems no reason in the present state of our knowledge not to allow an Egyptian origin for the wool weaves as well. They were probably cheaply made, and their wide distribution in Egypt indicates that they were within the means of many. They would scarcely, therefore, be the source of great profit to traders bringing them from Syria or Mesopotamia. Furthermore, the presence of the self-contained group from the Faiyûm mentioned above would tend to show that the type was manufactured there.[50] The considerations which apply to the Faiyûm presumably apply equally to other localities.

The woolen weaves must have been manufactured by professional weavers [51] and it is conceivable that they learned the principles of the draw-loom from Alexandria or some other large weaving center, and applied them to the making of cheaper wares to answer local demand, in the materials indigenous to the country—wool to take the dyes necessary to the traditional color scheme, and linen, the immemorial textile

fiber of Egypt, for the white pattern. It is as yet too early to attempt to narrow down the classification of these textiles by locality and time, but as scientific archæology in Egypt lays open more and more datable sites, we may approach some certainty in this matter.

The wool weaves, then, were probably the manufacture of Egyptian weavers in the 6th, 7th and possibly 8th centuries, and the evidence of their technique points to the use of a quite complex draw-loom in Egypt as early as the 6th century.*

* Since writing the above, I have been sent a copy of Metropolitan Museum Studies, Vol. II, Part 1, New York, 1930, in which M. S. Dimand, in the course of a general survey of Egyptian textiles, expresses the opinion that the patterns of these fabrics were mechanically produced.

DESCRIPTIVE LIST OF TEXTILE ILLUSTRATED

WOOL-WEAVE FROM THE AUTHOR'S COLLECTION

Plate I-A and B

Undyed linen on blue wool. Size approximately 8 in. x 2 in., 25 ends, 32 picks per inch. Warps: 2-ply blue wool, S-spun, Z-twist. Wefts: (1) Single-ply blue wool, S-spun; (2) Single-ply undyed linen, S-spun and woven double. Selvedge normal.

WOOL-WEAVES FROM THE BANKFIELD MUSEUM HALIFAX, YORKSHIRE, ENGLAND

No. 1, Plate II-A—Undyed linen on blue wool. Size 5¼ in. x 3⅜ in., 28 ends, 24 picks per inch. Warps: 2-ply blue wool, S-spun, Z-twist. Wefts: (1) Single-ply blue wool, S-spun; (2) Single-ply undyed linen, S-spun and woven double. Selvedge normal.

No. 2, Plate II-A—Undyed linen on red wool, but with green wool used for an edging and sparsely as a pattern-weft (see above, p. 75). Size 21 in. x 4⅜ in., 32 ends, 20 picks per inch. Warps: (1) 2-ply red wool, S-spun, Z-twist; (2) 2-ply green wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun; (2) 2-ply green wool, S-spun, Z-twist; (3) Single-ply undyed linen, S-spun and woven double. Selvedge normal.

No. 3, Plate II-A (Museum No. E. G. 328)—Undyed linen on blue wool. Size 8¼ in. x 1¾ in., 40 ends, 20 picks per inch. Warps: Single-ply tightly Z-spun blue wool. Wefts: (1) Single-ply blue wool, S-spun; (2) Single-ply undyed linen, S-spun and woven double. Selvedge normal on one side but piece hemmed on other.

No. 4, Plate II-A—Undyed linen on blue wool with a red border. Size 6¾ in. x 2⅜ in., 36 ends, 24 picks per inch. Warps: (1) Single-ply blue wool, Z-spun; (2) Single-ply red wool, Z-spun. Wefts: (1) Single-ply blue wool, S-spun and woven double; (2) Single-ply undyed linen, S-spun and woven double (or possibly trebled). Selvedge normal at one edge, hemmed at the other.

No. 5, Plate II-B (Museum No. E. G. 350)—Undyed linen on blue wool. Size 13½ in. x 3¾ in., 28 ends, 28 picks per inch. Warps: 2-ply blue wool, S-spun, Z-twist. Wefts: (1) Single-ply blue wool, S-spun and woven double; (2) Single-ply undyed linen, S-spun and woven double. Selvedge strengthened by five twists of weft around cord of two warps.

No. 6, Plate II-B—Undyed linen on red wool. Size 8½ in. x 4⅛, 42 ends, 30 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun; (2) Single-ply undyed linen, S-spun and woven trebled. Selvedge strengthened by a group of five red warps, outside which a threefold *green* warp, the two forming a pair of warp-cords around which the weft could be twisted.

No. 7, Plate II-B—Undyed linen on blue (green?) wool. Size 11½ in. x 3⅛ in.,

34 ends, 28 picks per inch. Warps: 2-ply blue wool, S-spun, Z-twist. Wefts: (1) Single-ply blue wool, S-spun and woven double; (2) Single-ply undyed linen, S-spun and woven apparently trebled. Selvedge strengthened by a group of three warps bound by a treble turn of weft.

No. 8, Plate I-C—Undyed linen on red wool. Size 11½ in. x ⅞ in., 52 ends, 28 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, Z-spun, (?); (2) Single-ply undyed linen, S-spun and woven double (treble?). Selvedge normal.

No. 9, Plate I-C (Museum No. E. G. 374)—Undyed linen on red wool. Size 6 in. x 1⅛ in., 48 ends, 28 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun; (2) Single-ply undyed linen, S-spun and woven double. Selvedge normal. Two strips apparently cut from one band and then joined in such a way that the pattern does not fit together.

No. 10, Plate I-C—Undyed linen on red wool. Size 7 in. x 3 in., 30 ends, 24 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun; (2) Single-ply undyed linen, S-spun. Selvedge normal.

No. 11, Plate I-C (Museum No. E. G. 349)—Undyed linen on blue wool. Size 20 in. x ⅞ in., 20 ends, 70-90 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun; (2) Single-ply undyed linen, S-spun and woven double (treble?). Selvedge normal.

No. 12, Plate I-C—Undyed and green wools on red wool. Width 1¼ in., 34 ends, 30 picks per inch. Warps: 2-ply red wool, S-spun, Z-twist. Wefts: (1) Single-ply red wool, S-spun and woven double; (2) Single-ply undyed wool (?), S-spun; (3) Single-ply green wool, S-spun and woven double. Selvedge apparently strengthened.

NOTES

1. It is a thousand pities that the sites of Akhmîm (the Greek Panopolis) and Antinoë, which have yielded by far the most important and numerous of our fabrics, should have been opened up before the era of scientific archæology, and surrendered their priceless plunder shorn of its evidential value. It is tragic, for instance, to read Guimet's "Portraits d'Antinoë" and need to piece together the infinitesimal fragments of evidence scattered by a writer absorbed in the study of comparative religions. The situation has improved. In 1926 appeared an account of the German excavations at Karâra in 1913-14 ("Koptische Friedhöfe bei Karâra," ed. H. Ranke, Berlin, 1926), and in 1933 there was published a survey of the textiles found by the University of Michigan expedition to Karanis in the Faiyûm in 1924-6 (Lillian M. Wilson, *Ancient Textiles from Egypt in the University of Michigan Collection*, Ann Arbor, 1933). An evil genius broods over this study. Both books contain valuable archæological evidence, yet the former, whose material is so rich, is marred by the fact that a part of the expedition's field records was lost in transit for Germany at the beginning of the last war: the latter, which suffered no such misfortune, describes a site relatively poor in textiles.
2. See, *e.g.*, A. F. Kendrick, *Catalogue of Textiles from Burying-Grounds in Egypt*, London, 1921, Vol. III, Chap. VII; O. von Falke, "Decorative Silks," Berlin and London, 1922, pp. 2-9; O. Wulff and W. F. Volbach, *Spätantike und Koptische Stoffe aus Agyptischen Grabfunden*, Berlin, 1926, pp. 145-152; J. F. Flanagan, "The Origin of the Draw-loom Used in the Making of Early Byzantine Silks," *Burlington Magazine*, Vol. XXXV, 1919.
3. See, *e.g.*, A. F. Kendrick, *op. cit.*, Vol. II, Chap. VII, Nos. 535-548; O. Wulff and W. F. Volbach, *op. cit.*, No. I 6682, Plate 36, No. 9017, Plate 57; Grace M. Crowfoot and Joyce Griffiths, "Coptic Textiles in Two-faced Weave with Pattern in Reverse," *Journal of Egyptian Archæology*, Vol. XXV, Part 7, 1939.
4. See, *e.g.*, Lillian M. Wilson, *op. cit.*, Nos. 11-15 and 116, Plates II and IV.
5. I have been most fortunate in being able to examine the fabrics of this type preserved in the Bankfield Museum, Halifax. For his courtesy in extending me this facility, and for permission to publish Plates I-C, II-A and II-B, I am indebted to the curator, Dr. M. B. Hodge. It is a pleasure to record here my grateful thanks to Sydney Harry, Esq., for every kind of practical help, in particular with the photographing of the Bankfield Museum pieces, and for his unfailing sympathy and interest in the work. Without him this paper could not have been written.
6. See below, p. 71.
7. O. Wulff and W. F. Volbach, *op. cit.*, Nos. 9103, p. 116, Plate 113, dated 6/7th century; 6831a, p. 70, Plate 93, dated 5/6th century; 14253, p. 69,

Plate 89, dated 4/5th century; 6884, p. 118, Plate 91, dated 6/7th century: A. F. Kendrick, *op. cit.*, Vol. II, Nos. 440, dated 5/6th century; 442, dated 5/6th century. This wide fling of dates can perhaps be restricted by the elimination of Volbach's 14253, the dating of the tapestry being possibly a little too early. The terminus *post quem* would then be 5/6th century. Compare also Bankfield Museum No. 4, Plate II-A, the tapestry of which may be dated 6/7th century (*cf.* O. Wulff and W. F. Volbach, Nos. 4596 and 9306).

8. The frequent appearance of these bands on woolen, rather than linen, tunics is an indication of late date, *e.g.*, A. F. Kendrick, *op. cit.*, Vol. II, Nos. 337, Plate XVI; 584, Plate XXIX; 587, Plate XXVIII; E. Errera, *Collection d'Anciennes Étoffes Égyptiennes*, Brussels, 1916, No. 210; Bankfield Museum Nos. 2, 7, 9, 11 (Plates I-C and II). Although all the bands cited here are not strictly of the type dealt with in this paper, they present a sufficiently close analogy to warrant their contribution to this argument. A. F. Kendrick, *op. cit.*, Vol. II, Nos. 337, 582, 583 and 584 (Plates XVI and XXIX), although it has not been my fortune to examine them, almost certainly form a distinct branch of the family, all four pieces deriving from the Faiyûm and being of a distinctive style, though woven in wools of different colors (red, blue and purple).

9. See A. F. Kendrick, *op. cit.*, Vol. II, pp. 2-3. Particular examples are: A. F. Kendrick, *op. cit.*, Nos. 337, Plate XVI (cuff-band, neck-piece and tunic-hem); 440 and 442 (cuff-bands); 570 and 578, Plate XXVIII (roundels): E. Errera, *op. cit.*, Nos. 210 (roundel), 211 (shoulder- and clavus-band): O. Wulff and W. F. Volbach, *op. cit.*, Nos. 9103, Plate 113; 6831a, Plate 93, and 14253, Plate 89 (neck-pieces); No. 6884, Plate 91 (shoulder-square): Bankfield Museum, No. 11, Plate I-C (neck-and shoulder-piece of a child's tunic).

10. In this example alone of the specimens examined, the undyed weft appears to be of wool and not linen—a possible indication of lateness, see *e.g.*, A. F. Kendrick, *op. cit.*, Nos. 575, 579, 581, 587, etc., the first-named being clearly related to No. 196 in Lillian M. Wilson, *op. cit.*, Part II, Plate XXIII, a piece probably deriving from Ashmunein, the ancient Hermupolis.

11. A number of threads from the piece shown on Pl. I-A, were tested by the Bradford Corporation Conditioning House, and the presence of indigo confirmed. The red piece, Bankfield Museum No. 11, Pl. I-C, was tested by the Sandoz Chemical Co. Ltd., Bradford, who, whilst able to state that madder was not used, could give no definite diagnosis beyond the opinion that the dye used was probably of the soluble redwood class, iron and copper being present as a mordant. Owing to overseas service I have been unable to follow this clue up. I am very much indebted to the Sandoz Co. for their courteous assistance.

12. The twists of spun yarns have been used by R. Pfister (in *e.g.*, *Textiles de Palmyre, Paris*, 1934, p. 38, n.) as an argument for attribution. The S-spun yarn, with a Z-twist if doubled, seems to be the general rule in Coptic Egypt, yet the appearance in, *e.g.*, Bankfield Museum Nos. 4 and 8, Plates II-A and I-C, of Z-spun yarns alongside S-spun, without any apparent discrepancy of dye or any other singularity of the textiles themselves, renders the argument dangerous if pressed too far. See also Grace M. Crowfoot and Joyce Griffiths, *loc. cit.*, p. 47. For technical details of the pieces published here, see below, p. 87.

13. Bankfield Museum No. 4, Plate II-A has single-ply red and blue warps.

14. *e.g.*, Bankfield Museum Nos. 5, 6 and 7. No. 6 has an additional group of three *green* warp threads outside a group of five red warps: the green is not visible, being completely covered by the whipped weft. It is noteworthy that these three pieces are further united by the style and fineness of their weaving, and by the use in Nos. 5 and 7 of a double pick in each shed of the ground weave. The linen pattern-weft appears to be woven trebled instead of doubled as in the coarser fabrics.

15. How this might be done may easily be seen by a glance at A. F. Kendrick, *op. cit.*, Nos. 574, 575 and 579 (Plates XXVIII and XXIX), or Lillian M. Wilson, *op. cit.*, Part II, No. 196, Plate XXIII. This practice also occurs in the case of the diaper-patterned silks, *e.g.*, O. von Falke, *op. cit.*, Fig. 10.

16. *e.g.*, Bankfield Museum No. 2, Plate II-A; A. F. Kendrick, *op. cit.*, No. 585; Lillian M. Wilson, *op. cit.*, Part II, No. 193, Plate XXIII.

17. In the figure the pattern-weft threads are marked where they pass over the warp-threads. A square marked in solid ink indicates an intersection observed with certainty from the fabric: diagonal hatching indicates an intersection reconstructed from a corresponding part of the design, and vertical hatching one probable from the general nature of the cloth. Half the pattern repeat has been hatched in this way, the remaining intersections being marked only as observed. The ground weave is not shown in the figure: if it were, the design would be obscured.

18. This feature of the back of the fabric has caused some doubt whether the pattern weft does not in fact occasionally cross a background weft. If this were so, the pattern could only be embroidered. It is true that the pattern wefts at the back of the fabric, floating free as they do, are liable to considerable distortion and do give an impression of disorder. But from my dissection of the fabric, as shown in Fig. 1, the fact emerges that in the preserved portions of the pattern, the pattern weft does infallibly lie in one shed between two background wefts, and never crosses from one shed into the next. Unfortunately, it is not now possible to publish a photograph of the back of this textile. Were it possible, it would actually create even more strongly the

impression that pattern wefts occasionally do jump from one shed to the next, but the fact remains nevertheless that they do not, and the impression would be all the falser for its strength. Such a photograph would, however, give a useful idea of the material extravagance with which these fabrics were made.

19. All the pieces observed in the Bankfield Museum bear out this observation except No. 2, which does not seem to adhere to the even-number principle. The nature of the warp in this case, however, made accurate observation difficult.

20. It has been necessary to make this description in the terms appropriate to pattern-weaving. The possibility of these fabrics having been embroidered is discussed below.

21. *loc. cit.*, p. 90. For the view that draw-cords were used in the making of these textiles, see J. F. Flanagan, "The Origin of the Draw-loom Used in the Making of Early Byzantine Silks," in *Burlington Magazine*, Vol. XXXV, 1919, pp. 167 ff., also V. Sylwan in *Rig* (Stockholm), VI, 1923, pp. 62 ff., Figs. 3 & 4 (in Swedish).

22. The horizontal ground loom was known and used early in Egyptian history. See H. Ling Roth, "Ancient Egyptian and Greek Looms," *Bankfield Museum Notes, Second Series, No. 2*, Halifax, 1913, pp. 3-14. A model of such a loom from the XIth dynasty is reproduced in *The Legacy of Egypt*, ed. S. R. K. Glanville, Oxford, 1942, Plate 19. The date of the introduction of the treadle loom is not known.

23. From the weaver's point of view, of course, if a horizontal loom was used, the figure would need to be turned upside down and the errors regarded as spreading *up* the warp. The other orientation is more convenient for description.

24. Fifteen for the pattern-wefts, two for the ground-weave, in order, *e.g.*, (1), 3, (2), 4, (1), 5, (2), 6, (1), etc., the heddles of the ground weave being shown in brackets.

25. The modern equivalent in hand-loom weaving is a draw-loom with a series of draw-cords which run on a frame over the head of the weaver and are fixed behind him. For each pattern-lift the appropriate draw-cords are controlled by a number of loops which are knotted together; thus when the knot is pulled down and fixed, the appropriate draw-cords are also pulled down and the corresponding warps raised.

26. It seems, however, quite likely that these bands were woven face down, as this would permit the lifting of the warps over which the pattern-weft was actually spread, rather than those more numerous threads not required to be covered, which would have to be lifted if the pattern was woven on the face of the cloth. The proper management of the pattern-weft where it was secured

by the ground-weft at the turn-back (see Fig. 2, B) would also be greatly facilitated by this.

27. *Op. cit.*, Vol. II, p. 82.
28. *Burlington Magazine*, Vol. XXXI, July 1917, p. 19.
29. No. 9 from Antinoë, No. 48 from Aix-la-Chapelle. See also O. Wulff and W. F. Volbach, *op. cit.*, No. 9269, p. 147, Plate 135.
30. *Cf.* also A. F. Kendrick, *Catalogue . . . , Vol. II*, Nos. 575, 581, although these are not strictly in the class under consideration. Also Lillian M. Wilson, *op. cit.*, Part II, No. 196, Plate XXIII; O. von Falke, *op. cit.*, Figs. 11 and 13; Bankfield Museum No. 9, Plate I-C.
31. Lillian M. Wilson, *op. cit.*, Part II, No. 193, Plate XXIII.
32. A. F. Kendrick, *Catalogue . . . , Vol. II*, Plate XXIX (white on red).
33. O. von Falke, *op. cit.*, Fig. 14.
34. A. F. Kendrick, *Catalogue . . . , Vol. II*, Plate XXVIII.
35. O. von Falke, *op. cit.*, Fig. 11. It is worth noting that the palmettes springing from the angles of the lozenges are strongly reminiscent of the Faiyûm group mentioned above—A. F. Kendrick, *Catalogue . . . ,* Nos. 337, 582, 583, 584.
36. A. F. Kendrick, *Catalogue . . . , Vol. II*, Plate XXIX.
37. Lillian M. Wilson, *op. cit.*, Plate XXIII: *cf.* E. Errera, *op. cit.*, No. 376, and A. F. Kendrick, *Catalogue . . . , Vol. III*, No. 849, Plate XXXII. *Cf.* also O. Wulff and W. F. Volbach, *op. cit.*, No. 9103, p. 116, Plate 113, and E. Errera, *op. cit.*, No. 223.
38. Compare, *e.g.*, V. & A. Nos. 579, 588 (A. F. Kendrick, *Catalogue . . . , Vol. II*, Plates XXVIII and XXIX) with O. von Falke, *op. cit.*, Fig. 11.
39. Compare, *e.g.*, V. & A. No. 835 (A. F. Kendrick, *Catalogue . . . , Vol. III*, Plate XXXI) and O. von Falke, *op. cit.*, Fig. 38 with the Michigan pieces 193 and 195 (Lillian M. Wilson, *op. cit.*, Plate XXIII); V. & A. No. 845 (A. F. Kendrick, *Catalogue . . . , Vol. III*, Plate XXXII) with the Bankfield piece No. 5, Plate II-B.
40. O. Wulff and W. F. Volbach, *op. cit.*, No. 6695, p. 137, Plate 117.
41. Possibly a discoloration of the linen thread. This may vary in color from pure white to a quite deep buff according to its state of preservation.
42. H. Ranke (ed.), *Koptische Friedhöfe bei Karâra*, Plate 8, 1. No details of the archæological context of this piece is given in the text, but the terminus *ante quem* is considered by the author to be the beginning of the 8th century.
43. A. F. Kendrick, *Catalogue . . . , Vol. II*, Plate XXVIII. *Cf.* also Bankfield Museum, Nos. 8 & 9, Plate I-C.
44. *e.g.*, O. Wulff and W. F. Volbach, *op. cit.*, No. 9230, p. 9, Plate 44, dated 4/5th century.

45. There is no indication of the use of these bands. The Karâra piece appears to be used as an edging to a cloth of apparently late type (resembling an Arab striped linen) and indeterminate use. If used as *clavus* bands the patterns would lie on their sides.

46. A. F. Kendrick, *Catalogue . . . , Vol. III,* No. 808, Plate XXV. It is woven in "orange and buff silk" and is attached to portions of a linen tunic. It was found at Lâhûn by Sir W. M. Flinders Petrie.

47. *Op. cit.,* pp. 3-5.

48. A. F. Kendrick, *Catalogue . . . , Vol. III,* Chap. VII, pp. 71-2, citing J. Strzygowski, "Altai-Iran und Völkerwanderung," Leipzig, 1917, and "Seidenstoffe aus Aegypten," from Königlich Preussische Kunstsammlungen, Jahrbuch, XXIV, 147, Berlin, 1903. I have not been able to refer to these works.

49. See A. F. Kendrick, *Catalogue . . . , Vol. III,* Chap. II: O. Wulff and W. F. Volbach, Nos. 9635, p. 106, Plate 109; 6882, p. 106, Plate 113; 9081, p. 127, Plate 115; 9082 and 9083, p. 121, Plate 115; these are imitations of the diaper-pattern type silks: Nos. 6902, p. 109, Plate 98 (*cf.* O. von Falke, *op. cit.,* Fig. 38); 6903, p. 127, Plate 98 (*cf.* O. von Falke, *op. cit.,* Fig. 14); 17529, p. 88, Plate 101 (imitations of silk showing Oriental influences).

50. See above, p. 1, n. 8. Bankfield Museum No. 5 (Plate II-B) displays a marked similarity to V. & A. No. 583.

51. In many excavations in Egypt, great quantities of spindles and weaving-combs have been found (see, *e.g.,* H. Ranke, *op. cit.,* p. 21 for spindles, p. 25 for combs; J. Strzygowski, "Koptische Kunst," *Catalogue Général des Antiquités Égyptiennes du Musée du Caire,* Vienna, 1904, pp. 153 ff.). It would appear from the wide diffusion of these objects that weaving was carried on as a home industry, but it seems probable that the weaves done were of the simplest (plain weaves and tapestries?), possibly on an upright loom against the wall. The weavings under consideration would require more elaborate equipment. Three reeds of a type resembling the modern reed have been found (see H. Ling Roth, *op. cit.,* pp. 21-22) and it seems probable that some such equipment was available to the weavers of these woolen fabrics.

CLUB NOTES, 1946

The first meeting of 1946 was held on Wednesday, January the sixteenth, at three o'clock, at the apartment of Mrs. Robert C. Hill, 101 East 72nd Street. At this meeting the speaker was Miss Marian Powys (Mrs. Peter Gray), who spoke on English lace to an audience that filled to capacity Mrs. Hill's rooms.

The thirtieth Annual Meeting of the Club was held on Wednesday, February the twentieth, at three o'clock, at the apartment of Mrs. A. Benson Cannon, 1160 Park Avenue. After the reading by the Directors of reports and the announcement by the Chairman of the Nominating Committee of the election of the ballot, the presentation was made to Miss Louise Kinderland, of the Friends' Service Committee, of a check for $2,125, the proceeds of the Bring and Buy Sale held at Miss Morris' apartment in December, for the relief work being carried on by the Quakers in devastated Europe. This was followed by a short talk by Miss Kinderland on details of this work.

A series of talks on the study and identification of lace was held at the apartment of Miss Frances Morris, 39 East 79th Street, on the mornings of March the first, eighth, fifteenth and twenty-second, to which close attention was paid by an interested and appreciative group of members. An additional meeting was held at the Metropolitan Museum of Art, in the Textile Study Room, to study laces in the Museum's collection.

On Thursday, March the twenty-eighth, Mrs. Frank B. Rowell and the Misses Wing entertained the Club at a spring meeting at 1040 Fifth Avenue. A talk was given in Mrs. Rowell's apartment by Miss Marion P. Bolles, Assistant Curator in charge of the Textile Study Room of the Metropolitan Museum of Art, on Flowers in Fabrics, after which tea was served across the hall in the apartment of the Misses Wing, who exhibited many of their laces and embroideries.

The season closed on April the seventeenth when Judge Irwin Untermeyer invited the members of the Club to see at his apartment, 960 Fifth Avenue, his superb collection of English embroideries, many of which had been shown at the exhibition of English Domestic Embroidery held at the Metropolitan Museum of Art in the preceding November.

The first meeting of the autumn was held on Wednesday, November the thirteenth, at the apartment of Mrs. Ludlow Bull. The guest of the afternoon was Mr. Paul M. Stokvis, former President of the Belgian Chamber of Commerce of Laces, and in charge of the exhibition of Belgian laces at the World's Fair in New York, who at three o'clock spoke to an attentive audience on Lace in the Last Century, presenting in its techniques, styles and uses, material not found generally in books devoted to lace.

On Thursday, December the twelfth, the Metropolitan Museum of Art generously invited the members of the Club to attend a preview at four o'clock of the reinstallment of the Costume Institute and Allied Collections at the Museum. Keen interest was shown in the costumes and their accessories and also, exhibited in an adjoining gallery, the rare and beautiful textiles recently acquired by the Museum.

THE BULLETIN

In the twenty-five years or more of its existence the Bulletin of the Needle and Bobbin Club has followed, as far as it has been possible, the plan originally set forth by its founders, an issue of the publication twice a year, each copy to appear as a single number. This arrangement would still be maintained had conditions since those simpler days remained the same. However, the excessive and ever-increasing rise in the cost of materials and labor necessitates a change in policy. The Publication Committee is loath to increase the price of subscription and as a measure of economy has decided to issue the Bulletin once a year, in January, but as a double number containing in one issue the same amount of material that heretofore has been comprised in two. It is hoped that this arrangement will meet with the approval of our subscribers who have for so many years loyally supported our publication.

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