



SILK PLANGI CLOTH (POLYCHROME)

DUTCH EAST INDIES. FROM THE COLLECTION OF MRS. JANE BELO TANNENBAUM, NEW YORK.

THE PLANGI TECHNIQUE

By CHARLES IKLÉ

THE Plangi¹ technique generally known as "Tie and Dye" is probably the most primitive way to create designs on dyed materials. It consists of tying up some parts of the material, then immersing it into the dye bath. The tied up parts are protected from the effect of the dye and remain undyed.

According to several investigations, the origin of Plangi must be sought in Central Asia. From there it spread to Japan and India. The period of its invention is probably as remote as the art of dyeing itself.

The term of "Tie and Dye" has generally been applied to this kind of work but the expression is not very satisfactory, as the term is also used when speaking of Ikats. This often leads to confusion.

The Plangi technique belongs to the group of resist methods:

- I. Plangi (also known as Bandhana work in British India).
- II. Ikat.
- III. Batik.

In Ikats the design and color are applied to the threads before weaving while in Plangi and Batik the dyeing process is applied to an already woven cloth.

In Ikats the threads that are going to be woven, either warp threads, weft threads or both, are tied around with fibre in certain parts according to the pattern desired so that these parts preserve their original color when the threads are put into the dye.

Batik consists in applying wax on a woven material, thus protecting certain parts from the effect of the dye. After dyeing, the cloth is dipped into hot water and the wax dissolved.

In the Plangi method, as previously mentioned, a woven material is gathered up into small puckers which are tightly wound around with

¹ The word "Pelangi" or "Plangi" is the Malayan word for binding or tying.

In British India the Sanskrit word, "Bandhana," having the same meaning, is used. The word "Bandhana" is also applied to a large silk handkerchief made by the Plangi process.

In ancient Japan the words "Kyokechi Zome" and "Kokechi Zome" were used. For the Japanese Plangis made today the words "Shibori Zome" are used.

thread, thus preventing the dye from penetrating the parts so protected. The thread used is sometimes prepared beforehand so as to make it withstand the dye, or some material is employed that has this quality by nature. After dyeing, the bindings are removed. The parts that were tied appear as irregular spots on the otherwise dyed cloth.

S. Linné in *Archeological Research at Teotihuacan, Mexico* (Stockholm, 1934), mentions Plangi as the probable forerunner of Ikat and Batik. He writes: "It may also have formed an earlier stage of Batik—although I have no definite information of wax also having been employed in the Plangi process, in the preparation of threads it is not altogether impossible that such may have been the case. The object aimed at in Batik and in this method is identical, although the former is a more highly developed form, a decorative technique, which in its way has attained perfection."

THE VARIOUS PLANGI METHODS

I. Gathering a white material into little puckers which are bound with threads. The result after dyeing is a white ring or a white square with a colored spot inside on a colored ground. To prevent the threads from slipping, little pebbles or pips are often inserted into the puckers. If a large white surface is desired, a larger pebble is inserted and the pucker is covered with a piece of dried leaf (often the banana leaf). The resulting white surface on colored ground is often decorated with a paint brush in brilliant color. This method is generally found in Dutch East India, especially in Java.

II. In many parts of India, chiefly in the Central Provinces and Rajputana, the process is the following and is called Bandhana² work:

First Stage—Fabric is folded in half, in quarters, or pleats, according to the requirement of the patterns.

Second Stage—It is dampened and pressed on a woodblock figured with a portion of the pattern in long wood pins.

Third Stage—The resulting raised points are skilfully nipped by the female worker (Bandhani), between the long nails of her thumb and first finger and each point is tightly bound with a waxed thread (*i.e.*, reserved), the thread being carried from one point to the next.

² For those who want a more detailed description of the Bandhana method, we recommend the chapter in G. Watt's *Indian Art at Delhi*.



RED AND YELLOW COTTON PLANGI

JAPAN, 19TH CENTURY. FROM THE COLLECTION OF THE METROPOLITAN MUSEUM OF ART, NEW YORK. THE BORDER AND THE DIAGONAL PATTERN OF LITTLE RINGS ARE DARK RED; ALL THE REST IS YELLOW. TECHNIQUE USED IS DESCRIBED ON PAGE 4, PARAGRAPH II.

Fourth Stage—The fabric thus knotted and reserved is dipped into the dye vat. All the unprotected parts are colored but the parts bound with the resist threads remain unaffected.

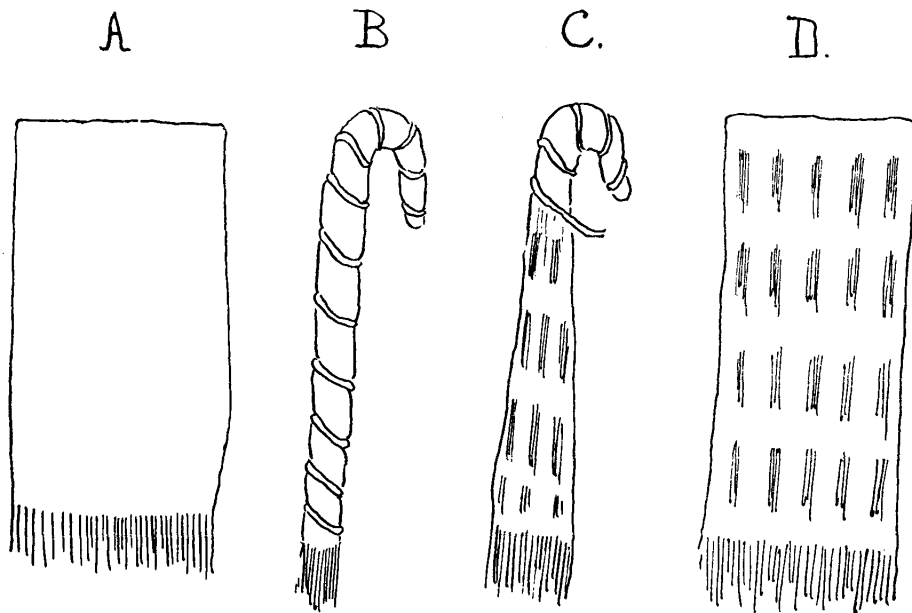
Fifth Stage—When dry, the resist thread is unwound and the fabric is stretched to remove the puckering. For each new color a further process of knotting and reserving has to be undertaken before dipping into the particular dye. The pattern can be elaborated in this way indefinitely.

Outside of India, this method is used also in Japan.

III. An interesting method of Plangi from West Africa (Nigeria, Gold Coast, etc., is shown in the British Museum, London, Charles Bevin Collection). See illustrations:

- A. A white cloth, 8" x 5".
- B. Is folded in pleats and tied with a cord or rope.
- C. Shows the cloth after it has been dipped into the dye (generally indigo blue) and partly unraveled.
- D. Shows the white cloth unfolded and unraveled.

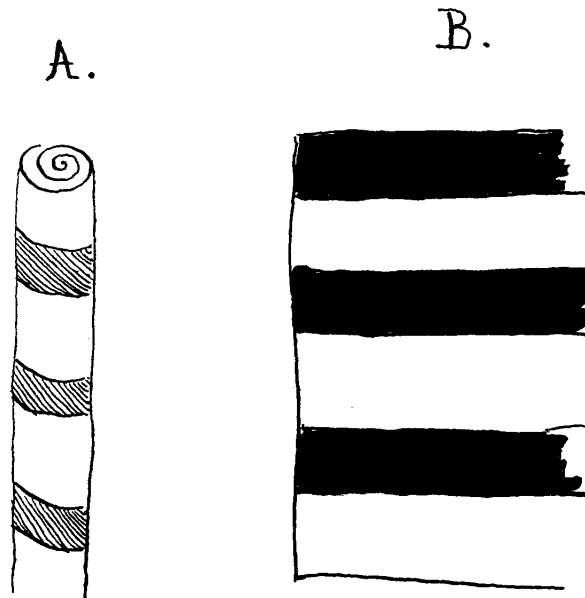
The result is a cloth with a blue pattern on white ground. The blue lines run downward with white intervals where the rope was applied.



IV. Crawford depicts an interesting example of a specific Plangi application. It was made in ancient Peru before the Spanish conquest. (See M. D. Crawford, *Anthropological Papers of the Museum of Natural History*, N. Y., 1912, pages 155 and 156.)

He shows a cloth rolled into a cylindrical form (A). At regular intervals parts of the cloth were covered with fibre so that after dyeing the result is a striped fabric (B).

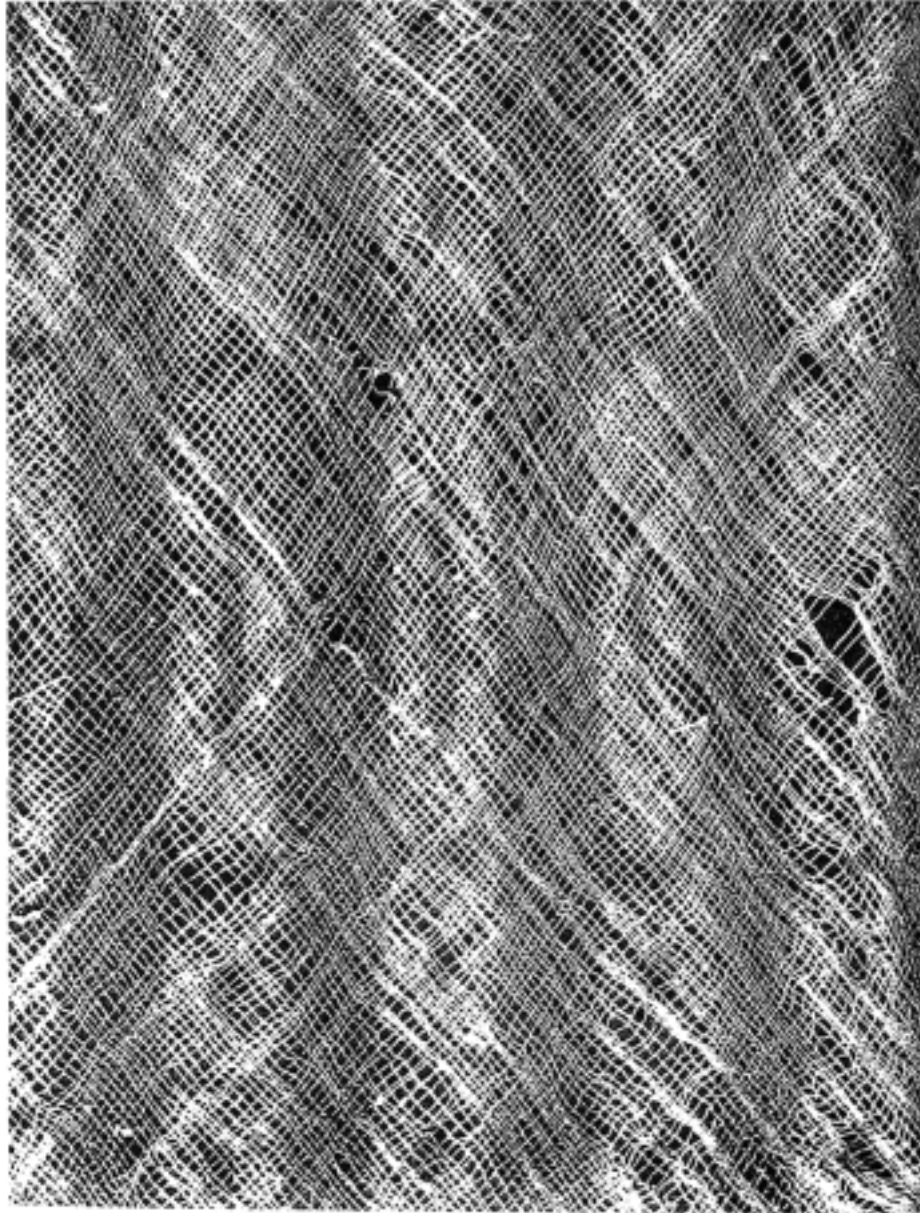
The covered parts have remained white, the balance has taken the color of the dye.



To be quite correct the term "Plangi" should be applied only to the methods so far mentioned where actually tying and dyeing is taking place.

There are several resist methods closely affiliated and often used in connection with the Plangi process. These methods give results very similar to Plangi and are obtained in the following manner:

1. A resist pattern can be obtained by running a thread (shirring) through a material and pulling the cloth together very tightly (ruffling the cloth). After dyeing and removing the thread, white dots on colored



PLANGI FROM OLD PERU
PROBABLY MADE BY THE METHOD DESCRIBED BY CRAWFORD, PAGE 7.

ground remain. The pattern is formed according to the way the thread has been run. (This method is known as "Triktik" in Java.)

2. A method of applying strings or cords of a certain thickness by sewing them tightly on a cloth and dyeing the cloth. After dyeing and when the strings have been removed, a pattern appears where the color has not reached the cloth. Specimens of this method from Borneo are in the Museum at Basle, Switzerland.

3. By applying parts of banana leaves of a certain shape, reserve patterns are also obtained.

4. By sewing bamboo figures upon the cloth before dyeing. This method is used by the Keos of West Flores in Dutch East India.

5. An unusual method consists in using pinchers on the cloth, thus preventing the effect of the dye. (Described by van Nouhuys in *Nederlandsche Indie, Oud en Nieuw*, Vol. 5, 1920.)

6. Rare is also the method described by van Nouhuys in the same volume. Leaves are folded into a block. They are pressed, tied and dyed. When untied, they have the appearance of an accordion. The colors penetrate only where the pleats are loose. The resulting effect is white stripes on a dark ground.

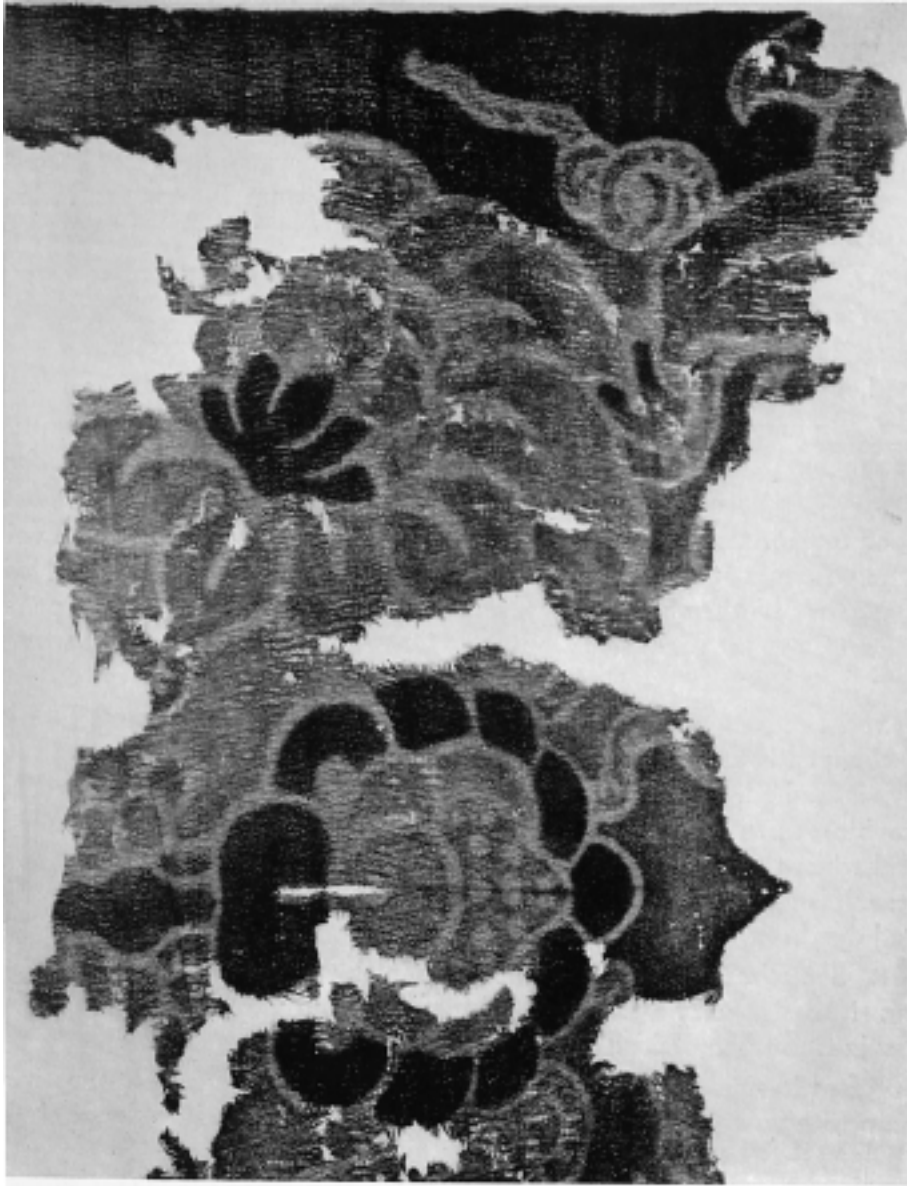
7. In old Japan there was a method called "Kyokechi Zome." Silk is clamped between two boards with a pierced design through which the dye is applied. When a symmetrical design is required, the silk is folded double; when four symmetrical patterns are wanted, it is quadrupled, and when the silk is required to be covered all over with the same pattern, it is folded as many times as required, tightly clasped between boards and dyed.

8. Sometimes a resist pattern is created by embroidering and picking out the embroidery after dyeing (examples from West Africa in Charles Bevin Collection, British Museum, London).

After having stated the various Plangi methods, the following may help to give a clearer and more detailed description of a Plangi cloth.

PLANGI CLOTH FROM SAMARANG, JAVA

In Samarang, on the north coast of Java, women make beautiful Plangi. According to Dr. Driessen (*Internationales Archiv für Ethnographie*, Vol. II, 1889), the silk and dyeing materials come from China. Possibly the Chinese introduced this art to Java. Inside of the island, where foreign influences are not so much felt, this art is scarcely found.



ANCIENT JAPANESE SILK GAUZE

THIS RESIST METHOD, KNOWN AS "KYOKECHI ZOME," GIVES RESULT SIMILAR TO PLANGI. REDDISH-BROWN FLOWERS WITH GREEN LEAVES ON A LIGHT ECRU GROUND. FROM THE IMPERIAL HOUSEHOLD COLLECTION, NARA, JAPAN, 6TH OR 7TH CENTURY OR EARLIER.



SILK JAPANESE PLANGI

PROBABLY 17TH CENTURY. BEAUTIFUL POLYCHROME FABRIC. VERY COMPLICATED RESIST METHODS WERE USED IN THE FABRICS OF THE YEDO PERIOD, 1630-1867. SEE THE COLORED REPRODUCTIONS IN BOOK BY OMICHI HIRO, "JIDAI GIRE MEIHIN SHU," TOKYO, 1935-36.

These Plangis are used for women's wear and often come in the shape of slendangs about 100 inches by 25 inches in size. They are especially worn by the dancing girls, "ronggengs," on festival occasions. Cheap imitations of these silk slendangs of Samarang are made of cotton near Loerabaya in Grissee.

In order to make an 18-inch square Plangi cloth (Fig. I) with a green center, the outside red, the following complicated process takes place: One takes a plain white silk cloth, 18 inches square, folds it twice, forming a square one-quarter of the original size. Two, three or even more are then laid on top of one another and stitched together. The design to be produced is sketched on the uppermost handkerchief (Fig. II).

The outlines of the spots and of the design which are to be reserved are then stitched with strings of some vegetable fibre. The method used is the one described under No. I, Page 4. Partly just by binding, partly where larger fields are to be reserved by tying after inserting pebbles. Where pebbles have been inserted, the knots are covered with small pieces of dried banana leaves and these leaves are firmly tied down around the knots. The linear patterns C and D are prepared by running threads along the lines of the pattern and shirring the cloth.

The cloth after these manipulations has this conelike shape, about one-third of its original size (Fig. III).

Now comes the operation of dyeing which would be simpler if only one color was desired. But here we have to obtain two shades, green in the center, red outside. It is therefore necessary to cover the whole center, A, B, C, with a large piece of dried leaf in order that it should not come in contact with the coloring matter. (See Fig. IV.)

The cloth is now dyed red and after removing the big leaf, A, B, C, the upper part D, E, C, B is red, the part A, B, C remains white.

In the next step, the part that is red is covered with a big banana leaf and the cloth is dipped into a yellow dye. After that, because green is wanted, the yellow part is dipped into indigo and green is obtained.

Now all the dyeing is finished.

The banana leaf is removed, also all the knots and ties. The result is a cloth that has a green center with a red border and with a pattern of little white rings and some large and smaller white spots.

These white spots are now, in order to heighten the effect, decorated by means of painting, in blue, yellow, purple and so on. Some painting may also be applied, if desired, to the figured lines.

Through the process the cloth shrinks from 18 inches to about 15 inches.

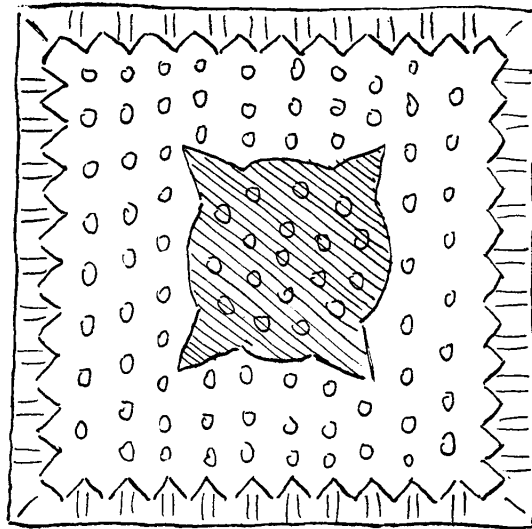


FIG. I
RED PLANGI CLOTH WITH GREEN CENTER.

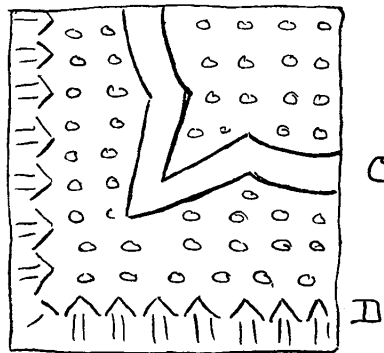


FIG. II

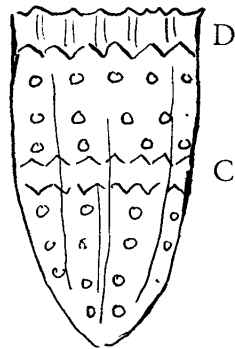
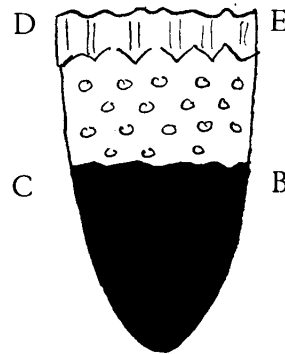


FIG. III



A
FIG. IV

The coloring materials used in Java in making these Plangis are:

- Indigo for blue.
- Cochineal for red.
- Turmeric for yellow.

The Plangis from Dutch East India, Japan and British India are the most elaborate in design and color.

From all other parts of the world, where this technique is or has been practiced, the patterns are generally simple and primitive, consisting of rings, squares and stripes.

ANCIENT PLANGIS

The date and place of origin of the Plangi method, if indeed it did not arise independently in different parts of the world, are unknown.

Sir Aurel Stein found in Khotan a small cotton bag dyed with indigo having a pattern of detached blossoms reserved in the original color of the cloth. The discoverer points out that the site where this fragment was found must have been abandoned not later than the 8th century. Its place of origin is uncertain, but it may have been produced in India.

In China, the method of resist dyeing was known at least as early as the 8th or 9th century A.D., or even earlier, for in the Imperial Household Collection at Nara, Japan (see *Gomotsu Jodai Sensho Kumon*, 1929), there are many Plangi materials of the 6th, 7th and 8th centuries, and very likely the Japanese learned this art from China. In fact, Aurel Stein found in East Turkestan resist dyeing on Chinese silks which may be as old as those of Nara.

Plangis were known in Peru before the Spanish Conquest in 1533; the material was frequently gauze.³

According to O'Neale and Kroeber's *Table of Peruvian Textile Art*, giving "frequencies of processes according to area and period," Plangis are sparsely represented in various places, but occur both in the late Chimu and Inca cultures.

Outside of Peru, Plangi was practiced early by Indian tribes of what is today the southwest of the United States and by the Aztecs of ancient Mexico.

Haury,⁴ in 1934, found specimens in the following regions: Canyon

³ Raoul d'Harcourt in *Les Textiles Anciens du Pérou et leurs Techniques* (Paris 1934), pp. 72-73, Plates XLIX & L, gives some good reproductions of old Peruvian Plangis.

⁴ See Haury, *Canyon Creek Ruin and the Cliff Dwellings of the Sierra Ancha* (Globe, Arizona, 1934). Plate LX, I. C.



THE NEZAHUALPILLI DEPICTION

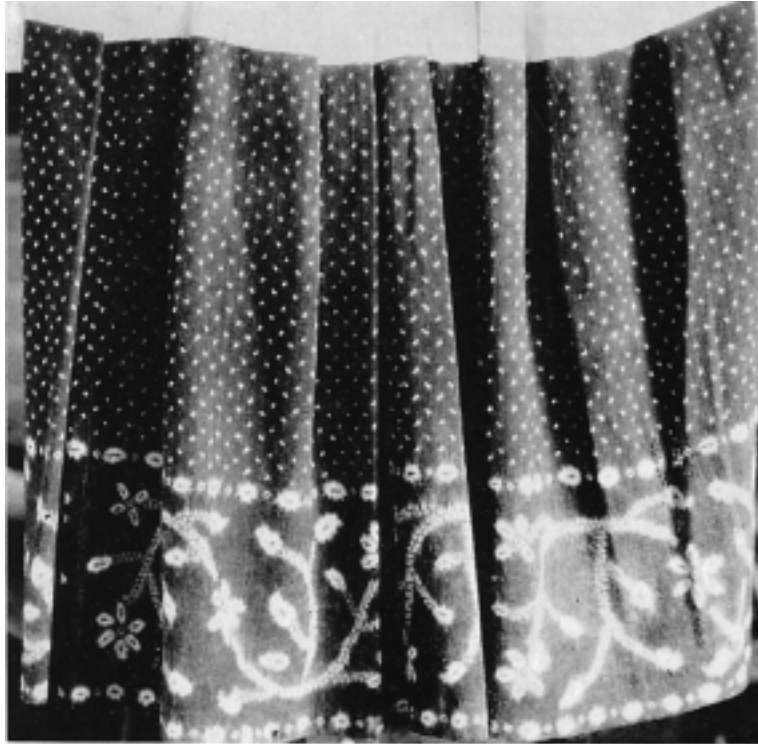
FROM AN OLD MEXICAN BOOK "DOCUMENTS POUR SERVIR À L'HISTOIRE DU MEXIQUE," ATTRIBUTED TO THE HISTORIAN IXTLIXOCHITL, BORN IN TEXCOCO, 1570, DESCENDANT OF THE WIFE OF NEZAHUALPILLI. THE CLOAK AND LOIN CLOTH APPEAR TO BE PLANGI. FROM THE COLLECTION OF MRS. E. MCDUGALL, WOODSTOCK, N. Y.



PLANGI FROM ANCIENT PERU
REPRODUCED FROM "LES TEXTILES ANCIENS DU PÉROU ET LEURS
TECHNIQUES" BY RAOUL D'HARCOURT.



PLANGI FROM MINDANAO, PHILIPPINE ISLANDS
LEIDEN MUSEUM, HOLLAND. HERE THE SEWING TECHNIQUE IS USED TO
OBTAIN THE RESIST PATTERN.



PLANGI FROM ZOCATICAN, HIDALGO, MEXICO

PATTERN IS WHITE ON BLUE GROUND. CLOTH IS INDIGENOUS (COTTON FIBRE). THE SIZE OF THIS CLOTH, 18 IN. X 60 IN. SIX SUCH CLOTHS SEWN TOGETHER MAKE A SKIRT. FROM THE COLLECTION OF MRS. E. MC DOUGALL, WOODSTOCK, N. Y.

Creek Ruin, Nitsie Canyon, Kayenta Region and Wupatki. The first and last mentioned localities have yielded tree ring dates whereby the latest years have been fixed at A.D. 1348 and 1197 respectively. The occurrence of the Plangi method in the southwest is thus exactly dated.

Today the Plangi method is still used in:

Asia—Japan, British India, Dutch East Indian islands (Java, Celebes and others),⁵ the Philippine Islands, where the Bagobo tribes are especially skillful at it, the New Hebrides.

Africa—Morocco and the west coast (Nigeria, Gold Coast, Dahomey, Mendiland, Gamba, Sierra Leone and Senegal).

North America—The technique occurs in Mexico (Hidalgo, Zocatican, Malinalco, and in the region between Vera Cruz and Puebla). Mrs. E. McDougall gave the writer a sample of blue and white Plangi from Zocatican (plate on page 18).

South America—According to Nordenskiöld, Plangis are found also in Central America, in Venezuela, on the west coast, and in western Argentina.

Nordenskiöld's specimens from Indians of Calilequa (Argentina) and the Mataco Indians of El Gran Chaco testify to the survival in those localities of cultural elements at one time borrowed from the Peruvian high civilizations.

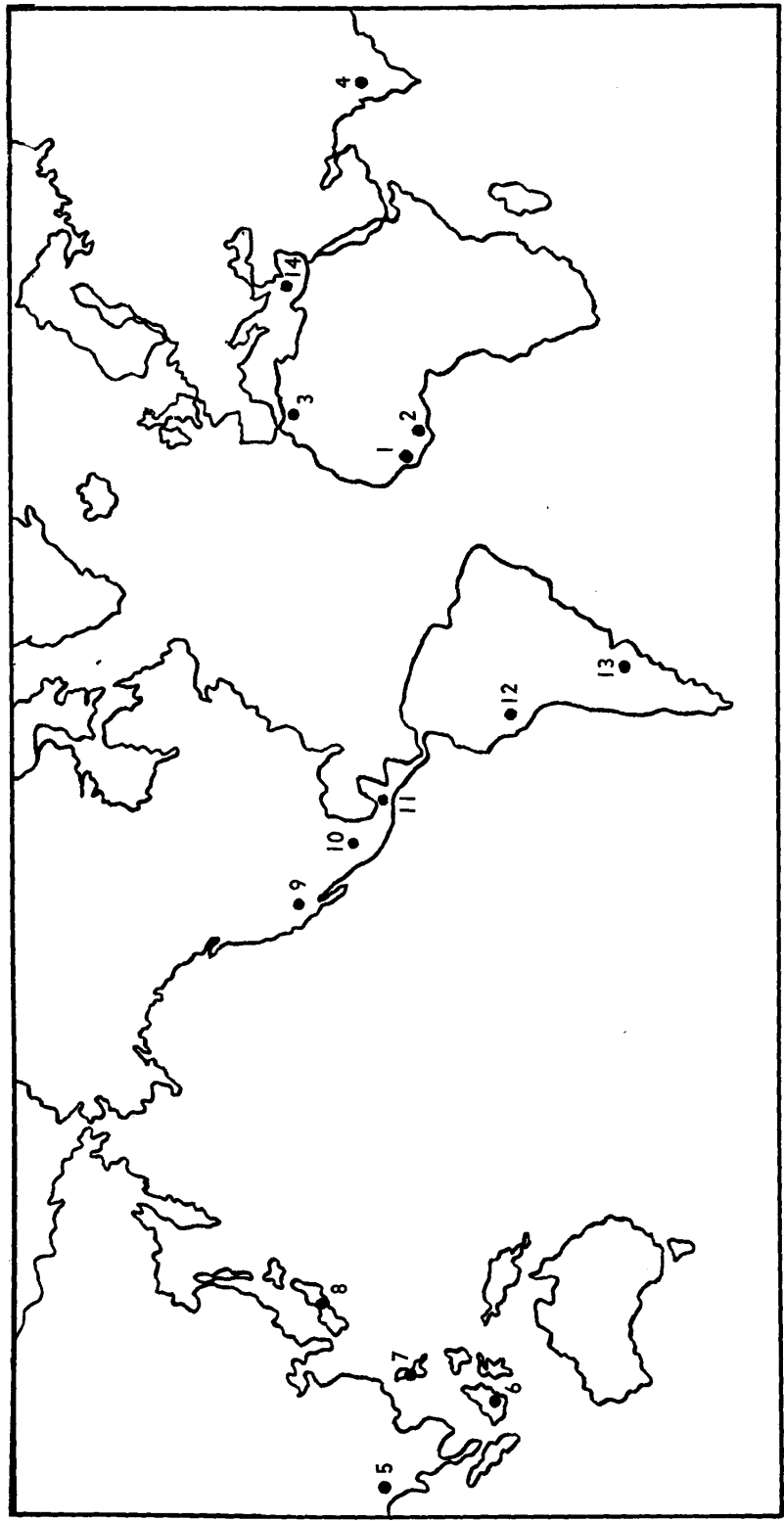
In Europe the technique is scarcely used. Lately it has been applied occasionally in modern arts and crafts.

The only exception is the island of Cyprus. There in a small mountain town the women make Plangi for their own use, not for commercial gain, but the custom is dying out.

To go into greater detail on this subject would require much more space. This is just a first attempt at gathering some facts on Plangis, and much more work and research will have to be done.

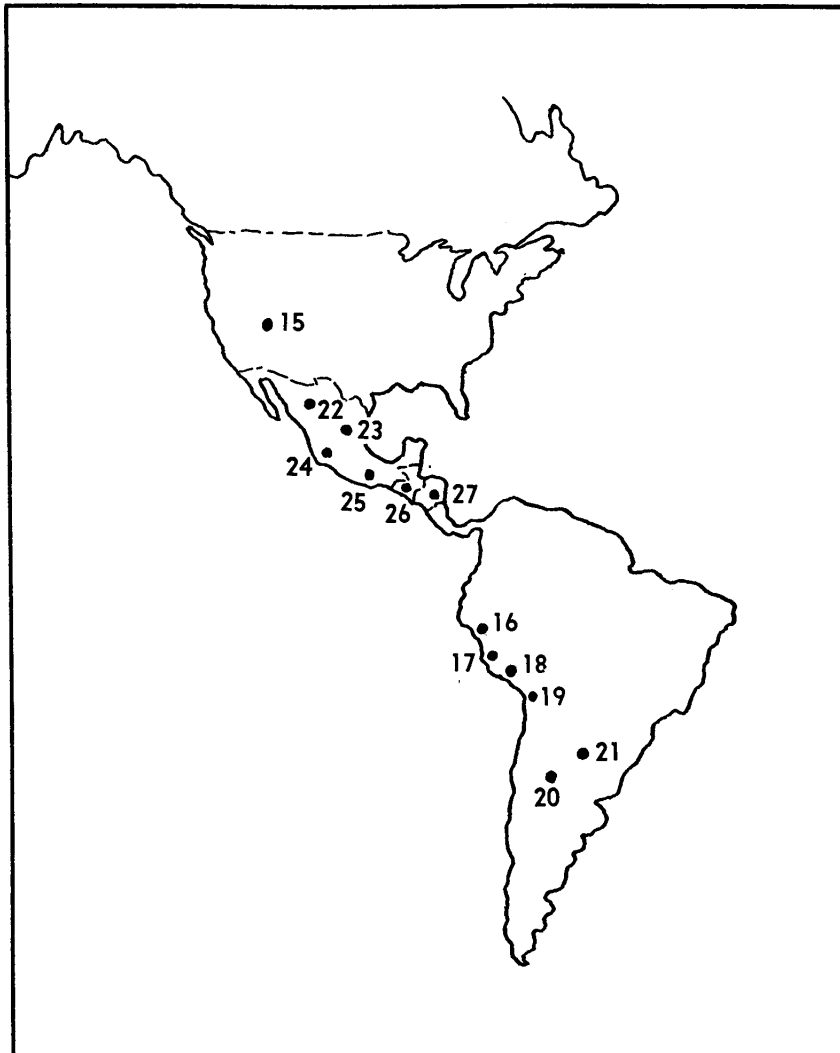
⁵ The Keo natives of the jungles at Mangarai and West Flores (M. Freyss in *Tydschrift van Indische Taal Land en Volkenkunde*, Deel 9) have blue slendangs with white figures which are exclusively produced by them.

Before dyeing they sew bamboo figures upon the cloth. After dyeing they are removed and the white impressions of the figures remain upon the cloth.



CENTERS OF PLANGI METHOD ALL OVER THE WORLD

- | | | |
|-----------------------------|---------------------|------------------------------|
| 1 & 2. WEST COAST OF AFRICA | 9. S.W. OF U. S. A. | 12. WEST COAST SOUTH AMERICA |
| 3. MOROCCO | 10. MEXICO | 13. ARGENTINA |
| 4 & 5. INDIA | 11. GUATEMALA | 14. ISLAND OF CYPRUS |
| 6. DUTCH EAST INDIES | | |
| 7. PHILIPPINES | | |
| 8. JAPAN | | |



PLANGIS IN THE NEW WORLD

- | | |
|-------------------------------------|-----------------------------------------------|
| 15. S.W. REGION OF U. S. A. | CENTRAL AMERICA: |
| SOUTH AMERICA: | 22. ZOCATICAN, MEXICO |
| 16. CHANCAY | 23. HIDALGO, MEXICO |
| 17. PACHACAMAC AND LIMA | 24. MALINALCO, MEXICO |
| 18. CANETE | 25. REGION OF VERA CRUZ AND PUEBLA,
MEXICO |
| 19. NAZCA | 26. GUATEMALA |
| 20. INDIANS OF CALILEQUA, ARGENTINA | 27. CENTRAL AMERICA AND VENEZUELA |
| 21. MATACO INDIANS | |

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