

中央研究院民族學研究所

專刊之三

樹皮布印文陶與造紙印刷術發明

凌 純 聲

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臺 灣 南 港

序

民國四十七年夏，小女曼立在臺灣東部，花蓮縣馬太安社阿美族從事民族學調查工作。她發現馬太安社老年人中，尙有多人見過樹皮布，並且還有人能記憶清楚在其少年時做樹皮布的方法，當時她祇問了一個大概。調查回來後，她告訴我此事，我對她說此一發現甚為重要，這一現已消失的樹皮布文化，幸而老人尙在，應快去做復原工作。所以在民國四十八年的年暑假，她又兩次赴馬太安社作調查時，都繼續做此項工作。所得資料關於樹皮布的原料及其製造的過程與技術記錄得相當詳細。因此鼓勵她將這部份材料提出來，先行整理並與環太平洋其他地區的樹皮布做一番比較研究，作一專題發表。因為環太平洋地區當然應包括中國一區在內，但中國古代有關樹皮布的材料，文獻散載古籍，當初她已搜集一部份資料，但繼續再找頗感吃力，而費時太多。因此著者利用她所得材料，繼續搜求與研究，擬先寫成中國古代的樹皮布文化一文，以補她文中所缺的中國地區。但後來在研究中，發現中國漢代蔡倫對於造紙術的發明，是受樹皮布文化演變而來的影響，乃將題名改為中國古代的樹皮布文化與造紙術發明。在第二世紀（105 A. D.）初蔡倫發明用植物纖維造真紙故名蔡侯紙之後，古代的樹皮布紙又名赫蹏書的仍繼續製造，如第三世紀陸機（261—303）詩疏的穀布紙；第四世紀東晉初年虞預表中稱的布紙，都是樹皮布紙。因為真紙雖價廉而質輕薄，然紙質柔弱而易破碎，並且不能受濕。反不如穀布紙的粗厚而能耐濕經用。所以中國直至唐宋金元的時代，通行的紙幣又名楮幣或楮鈔，或是直接以樹皮布紙而造鈔幣；至少是採用古代打製樹皮布紙的方法以造鈔紙。又唐宋以來做紙甲紙衣紙帷等的紙，及北宋初年鈔寫藏經用的金粟牋等，作者懷疑這許多名雖為紙，實非真紙而為樹皮布紙，乃寫了三篇論文：宋元以後造楮鈔法與樹皮布紙的關係，唐宋以來的紙甲紙衣紙帷考，北宋初年的金粟牋考，以上三文，僅根據文獻的記載作的考證，藉志存疑。夏金元時的紙幣和北宋初的金粟牋，幸實物尙存，希望造紙專家，能作實物的研究，以明究竟。

在研究樹皮布文飾時，發現樹皮布上的花紋，除手繪外多數是由印刷而成，印刷

樹皮布花紋的技術有五種：鏤空花模版 (stencil designs)，陽文花模板 (tablet designs)，雕花木板 (carved board)，小花木印 (small stamps)，滾條木軸 (wooden cylinders)。這幾種印花紋於樹皮布，當為後世印花布的先河。作者以為古代雕板印畫必先於印字，其在技術相同，不過文字與花紋的分別而已。印刷術發明既與印花布有關，更應溯源到樹皮布印花，在樹皮布印花與印刷術發明一文中即證明此說。又印文陶的花紋及文字與印刷術發明一文，是研究從新石器時代起與樹皮布印花同時並存的印紋陶文化，因為印花樹皮布與印紋的陶器的製造技術，打製工具及所印花紋，有許多相同之處，因此她們可稱是姊妹文化，二者都可說是後世印刷術發明的先驅。

在曼立文中曾述及臺灣樹皮布石打棒，作者後又繼續新發現若干石打棒，又將臺灣打棒類型，與華南，東南亞及中美洲的作一比較研究，寫成華南與東南亞及中美洲的樹皮布石打棒一文。自民國五十年至五十二年的三年中，關於樹皮布，印紋陶與造紙，印刷術發明，這一類問題先後寫了七篇論文，發表之後，頗能引起中外學者的注意，索取抽印本者甚多，茲集七篇論文及曼立的臺灣與環太平洋的樹皮布文化作一專刊出版，以就正於有道。又本報告能得出版，承嚴伯英，陳毓杰兩先生節譯英文與整理文稿，協助甚多，特此敬表謝意。

凌 純 聲

民國五十二年十月

FOREWORD

During her ethnological survey of the Ami Tribe at Vata-an Village of Hualien Hsien in east Taiwan in the summer of 1958, my daughter, Mary Ling, found out that many of the aged aborigines of Vata-an had seen the bark cloth during their early days and some of them could still describe clearly its manufacturing processes from their remembrance. However, she made only a general inquiry then about this subject. Being advised of this upon her return, I told her that it was an important discovery of the bark cloth culture which has now disappeared, and that some reconstruction work should be done about it as soon as possible while these aged aborigines were still alive. As a consequence, she made two more trips to the Vata-an Village during the summer and winter vacations of 1959, chiefly to carry out further investigation and possible reconstruction work of this ancient culture. In view of the considerable valuable materials and informations she collected from these trips with regard to the raw materials and manufacturing skills and processes of the ancient bark cloth, I then encouraged her to first arrange these materials and then, based on these materials, make a comparative study of the various features of the bark cloth culture of the circum-Pacific areas and publish the results of this particular study in a paper. China is, of course, included in the circum-Pacific area. Originally she had gathered some of the data and records in connection with the bark cloth of ancient China which are scattered in numberless old documents and books. Nevertheless, it later became quite difficult and time-consuming for her to continue her search for more of such materials. As a result, I decided to write a paper on the bark cloth culture of ancient China myself in order to supplement the portion of China which was lacking in her paper. For the development of this paper, I conducted a thorough study, based upon the materials made available by her and the other data I later collected myself. During my study, I discovered that the invention of the art of paper-making by Tsai Lun in the Later Han Dynasty (25—220) was a result of the

influence of the bark cloth culture, and accordingly, I changed the title of this paper to "Bark Cloth Culture and the Invention of Paper-Making in Ancient China". As a matter of fact, the bark cloth paper of old times, also called the *heti* paper, continued to be in production long after the appearance in the 2nd century (105 A.D.) of the "True Paper" which was made with plant fibres and was also known as the "paper of Marquis Tsai" because Tsai Lun invented it. The following are named for further example: The *ku pu* paper recorded in Lu Chi's (261-303) *Shih shu* of the 3rd century; and the cloth paper mentioned in Yu Yu of early Eastern Chin's Memorial of the 4th century, both were bark cloth paper. Although the true paper was cheap, light and thin, it was fragile, unable to resist dampness, and therefore not so durable as the coarse and thick *ku pu* paper. For this reason, the paper currency, also known as *chu pi* or *chu chao*, in circulation in ancient China from the remote times until the Tang, Sung, Kin and Yuan Dynasties, had been made either directly with bark cloth paper or at least the ancient beating process of bark cloth manufacture was adopted in making the paper for such currency. Likewise, I believe the paper which had been used to make armors, clothes, screens, etc. down from the Tang and Sung eras, and the Chin Shu paper which had been used for making copies of Buddhist Classics during the early Northern Sung period, were not the so called "true paper", but varieties of bark cloth paper. Recently, I have completed some research work in this area based upon the records and documents which were made available to me. And for the benefit of those who have interest in this same area, I have published the results of my research under three separate titles, namely, "Relationship between the Making of Chu Chao (paper money) down from Sung and Yuan Dynasties and the Bark Cloth Paper", "Study of the Paper Armors, Paper Clothes and Paper Screens from the Tang and Sung Dynasties", and "Study of the Chin Shu Paper of Early Northern Sung Period". Fortunately, specimens of the paper currencies of Hsia, Kin and Yuan periods as well as samples of the Chin Shu paper of Northern Sung are still in existence. And it is hoped that some expert paper-manufacturers can determine the truth by careful examination of these existing specimens.

In my study of the decorated bark cloth, I found out that except by hand painting, most of the designs and patterns were printed on the bark cloth in the following five different methods: Stencil designs; tablet designs; carved board; small stamp; and wooden cylinders. It may be said that such bark cloth with printed designs was the forerunner of the printed cloth of later ages. It is my opinion that wood-block printing of pictures had appeared earlier than the printing of characters in ancient China; essentially, the former was concerned with the printing of figures or designs, while the latter with the printing of words, but there was little difference between them so far as the basic printing skills were concerned. Since the invention of printing was related to the printed cloth, it is more proper that its origin should be traced to the decorated bark cloth and my article titled "Design-Printing on Bark Cloth and the Invention of the Art of Printing" was written from this point of view. Further, my paper, "Designs and Inscriptions on Impressed Pottery and the Invention of Printing" presents my study of the culture of impressed pottery which had co-existed with the printed bark cloth ever since the Neolithic era. And they may be called Sister Cultures because they had much in common with respect to their manufacturing processes and tools as well as the designs or patterns adopted. Thus both may be regarded as the herald of the invention of the art of printing.

Subsequent to Mary's discussion in her paper of the stone bark cloth beaters found in Taiwan, I discovered more such stone beaters and made a comparative study, by type, of the beaters of Taiwan, South China, Southeast Asia and Central America. The result of this study was published in my paper, "Stone Bark Cloth Beaters of South China, Southeast Asia and Central America". During the 3 year period from 1961 to 1963, I had completed 7 papers with regard to the ancient bark cloth culture, impressed pottery and the inventions of paper-making and of block printing, etc. All of which have attracted the attention of scholars at home and abroad, and requests for reprints have been received frequently. In view of this and for the sincere purpose of eliciting valuable comments from scholars who are also

interested in this field, this special volume, containing seven of my recent articles and Mary's "Bark Cloth Cultures of Taiwan and the circum-Pacific Areas" is published.

Finally, I wish to express my deepest appreciation to Mr. Yen, Po-ying for his translation of each of the English abridgements. I am also grateful to Mr. Chen, Yu-chieh for the assistance he has provided in search of background information, arrangement of necessary materials as well as the final preparation of the manuscript for publication.

Shun-sheng Ling

October, 1963

樹皮布印文陶與造紙印刷術發明

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一 中國古代的樹皮布文化與造紙術發明

- 一、前言
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一、前 言

民國四十七年夏，本所承中國東亞學術研究計劃委員會之推薦，得哈佛燕京學社的補助，舉行臺灣花蓮縣光復鄉馬太安社阿美族的民族學調查，這是一個訓練計劃，所以參加的人員，多數是民族所的助理員及臺灣大學考古人類學系的高年級學生。小女曼立利用暑假亦加入此項工作。她擔任阿美族的衣服，飾物，紡織，編織等項調查。在她調查衣服的原料時，發見馬太安社老年人中，尙有人見過樹皮布，並且還有人能記憶清楚其做法。當時她祇問了一個大概。調查回來後，她告訴我此事，我對她說此一發見甚爲重要，這一現已消失的樹皮布文化，幸而老人尙在，應快去做復原工作。所以在民國四十八年的年暑假，她又兩次赴馬太安社作補充調查時，都順便繼續此項工作。所得資料對於製造樹皮布的過程與技術紀錄得相當的詳細。因此鼓勵她將這部份材料提出來，先行整理並與環太平洋其他地區的樹皮布做一番比較研究，作一專題發表。本文可說是著者指導她研究和寫作臺灣與環太平洋的樹皮布文化論文的副產品。因爲環太平洋地區當然應包括中國一區在內，但中國古代有關樹皮布的材料，文獻散載古籍，當初她已搜集一部份資料，但繼續再找頗感吃力，而費時太多。因此

著者利用她所得材料，繼續搜求與研究，先完成中國古代的樹皮布文化，以補她文中所缺的中國地區。又同時發現中國漢代蔡倫對於造紙術的發明，是受樹皮布文化演變而來的影響，著者再繼續研究，這是本文命題的由來。

樹皮布文化的地理分佈甚廣，其區域西起非洲西部，東經東南亞，太平洋諸羣島，而達中南美洲。現代民族學家多數以為這一文化特質，是起源於東南亞，而後東西分道傳播至美非二洲的。西洋的人類學者很少兼治漢學，不能在中國古文獻中找資料，所以多數不知中國古代不僅華南，甚至在華中與華北亦有樹皮布文化，如西方的人類學同工，讀到本文以後，他們對於樹皮布這一文化特質起源的觀點和理論，應當有所改變。

造紙術是中國四大發明之一，中西學者已有不少人研究過這一問題，紙是後漢蔡倫發明的，史有明文；但在蔡倫之前，已有幡紙，絲紙和赫蹏書的薄小紙的問題，中外學者迄今尚在爭論未得解答。國內學者中央研究院院士同仁中，在近三十年來，就有三位先生發表三篇與造紙術發明有關的重要論文：姚從吾（士鰲）的中國造紙術輸入歐洲考，勞貞一（榦）論中國造紙術的原始，李書華（潤章）造紙的發明及其傳播。他們多討論到蔡倫以前的紙，尤其是漢書所載赫蹏書的問題，三位的意見不一，著者現在提出新的解答，西漢時的赫蹏書，應劭注作薄小紙，就是中國古代的樹皮布，亦即陸機詩疏所說的穀布紙，這種紙或稱布，在蔡倫之前早已存在，蔡倫不過利用古代造絲紙和穀布紙的兩種方法合併，原料方面本來用動物纖維之絲，代以植物纖維而已。所以要明瞭蔡倫紙或稱真紙的發明，必須先研究中國古代的樹皮布文化。

二、中國古代的榻布答布都布納布

樹皮布在馬來玻利尼西安語 (Malayo-Polynesian) 或南島語 (Austronesian) 中稱為 *tapa*，臺灣土著族的語彙中亦有 *tapas*, *tapal*, *tariḗ* (*ri* 為接中語)，*tapes* 等語⁽¹⁾與樹皮布有關，使吾人感到驚異的，中國古代稱樹皮布亦同此名，雖文字上有榻布，答布，都布，納布諸名，都可說是 *tapa* 一語的同音異寫，或因時代先後或地域

(1) 鹿野忠雄 1946, p. 317.

的不同而生的差異。如史記卷一二九貨殖列傳第六九云：

其帛絮細布千鈞，文采千匹，榻布皮革千石。

在汲古閣刻本的史記，榻布之榻作榻，這是值得注意的。又在前漢書卷九一貨殖列傳第六一云：

其帛絮細布千鈞，文采千匹，答布皮革千石。

上段文字除榻寫作答字外，可說是與史記的完全相同。後漢書卷二四馬援列傳第十四云：

公孫述稱帝於蜀，鄧使援往觀之。援素與述同里閭相善，以為既至，當握手歡如平生。而述盛陳陸衛以延援入，交拜禮畢，使出就館，更為援制都布單衣，交讓冠。

但在東觀漢記卷十二列傳第七馬援傳云：

為援制答布單衣，交讓冠。

東觀漢記與漢書均為班固所著，故多用‘答布’，至范曄時始作都布。至在宋書中又稱納布，宋書卷七一一列傳第三一徐湛之傳云：

初高祖微時，貧陋過甚，嘗自新洲伐荻，有納布衫襖等衣，皆敬皇后手自作。由上錄可見自前漢至劉宋樹皮布之名已有四種。古來注家如三國魏孟康漢書音義注答布云：“答布，白疊也”。劉宋裴駟史記集解注榻布亦云：

徐廣曰榻音吐合反。駟案漢書音義曰：榻布，白疊也。

至唐初顏師古漢書注答布云：

麤厚之布也，其價賤，故與皮革同其量耳，非白疊也。答者，重厚之貌，而讀者妄為榻音非也。

顏氏雖言榻布非白疊，而為麤厚之布，但亦未能說明是何種布類。直至明清注家對榻布是否為白疊，尚在爭論，莫衷一是。如明末清初方以智的通雅卷三七云：

榻布，即答布也。馬援都布單衣，注即答布。郝氏引史記貨殖傳榻布，注榻布白疊布。……按榻即答，番布之稍粗者。

梁玉繩史記志疑卷三五云：

附案：榻乃答之譌。師古云：麤厚之布，非白疊也。晉書王沈傳：拉答者，有

沈重之譽，可參。

沈欽韓漢書疏證卷三四云：

答布按上言細布，則知是麤布。其時白疊未入中國故孟康之說非也。答布即納布，宋書徐湛之傳，高祖微賤時，伐荻有納布衣襖，以付長公主。柳元景傳薛安都著絳衲兩當衫，衲即納之異。

王先謙漢書補註卷六一云：

顏氏家訓云：酪者多饒積厚之貌，與答布重厚之意相近。集韻答酪二字同託合切，與榻音亦相近。

俞正燮癸巳類稿卷十四木棉考：

木棉有木本，有草本。其為布初見者史記貨殖列傳榻布千石，注引漢書音義云：白疊也。三國志東夷傳云：倭人男子露紵，以木棉招頭。

由上可見史記的榻布即漢書的答布，洪頤宣曰：“史記作榻布，齊民要術卷七引漢書亦作榻布千石”。答布又作都布，後漢書馬援傳的都布，在東觀漢記同傳作答布。宋書的納布，沈欽韓以為納布即答布。此榻，答，都，納布，明明同為一物，可能是因時代的先後而異寫。又榻布究為何種布類？孟康謂是白疊，顏師古謂非白疊而僅是麤厚之布，方以智則以為番布之稍粗者，其他注家皆無創見。方氏以榻布為番布，可見榻，答，都，納為番名之漢譯也。中國古代注家近兩千年來，未知榻布答布等究為何種布類，雖方以智認為榻布為番布之稍粗者，其說稍近事實，然亦未能明言榻布為樹皮打成之布。

日本學者那波利貞在1923年著榻布考一文，他的結論說：

日本的古語習慣將楮栲布稱做 *tahu*，古習慣常常將此語相當於漢字的榻布答布，此可能對秦漢人之楮栲布，俗稱的 *tahu*，在很早就傳到日本，而漢書的答布，就是楮栲布，也即用楮栲所織的織物⁽¹⁾。

國分直一氏在他所著東亞古代之 tapa 文化文中對那波氏認為答布與楮栲布同是織成之布不能同意，他說：

(1) 那波利貞，1923, pp. 28-29.

筆者認為並非織物，而是以槌氈法 (felting) 的手續 (process) 打成的樹皮布即 *tapa* 布⁽¹⁾。

國分氏的結論是正確的。又三宅米吉氏的栲布考文中也說：

tahe 與 *tapa* 相似處有四項：原料同一，名稱相似，形質用法相近，製法亦同。⁽²⁾

後籐守一氏在服裝史概論文中也認為 *tahe* 是 *tahu*，他說：

栲布是拷布之誤，拷為打之意，拷布為打成之布的意思，此或我國最古的衣料也說不定⁽³⁾。

此栲布為拷布之誤，與前引在汲古閣刻本的史記榻布之榻作搨，同一意義，搨亦打之謂也。故中國古代的榻布、答布等，為日本的栲布 *tahu* 或 *tahe*，與今太平洋區的南島語中的 *tapa*，同是以樹皮打成之布。其名稱相同及其由來，詳見後說。

三、古代華北的楮冠與江南的穀布衣

史記的榻布與漢書的答布，是住在中國南方的南島語系遺民及苗蠻等族稱樹皮布的名詞，直接音譯而來的，在下文第六節將詳細討論。但在古代中國華北及江南則稱樹皮布謂楮布或穀布，早用以做衣冠。如漢初韓嬰的韓詩外傳卷一有云：

原憲居魯，環堵之室，茨以蒿萊，蓬戶灑牖，桷桑而無樞，上漏下濕。匡坐而絃歌。子貢乘肥馬，衣輕裘，中紺而表素，軒不容巷而往見之。原憲楮冠黎杖而應門，正冠則纓絕，振襟則肘見，納履則踵決。子貢曰：嘻！先生何病也。

原憲，孔子弟子，公元前第六世紀時人，當時用楮皮為冠，故曰楮冠。毛詩小雅鴻雁鶴鳴：

樂彼之園，爰有樹檀，其下維穀。

陸機毛詩草木鳥獸蟲魚疏卷上註：“其下維穀”：

穀，幽州人謂之穀桑，或曰楮桑。荆揚交廣謂之穀，中州人謂之楮。殷中宗時桑穀共生是也。今江南人績其皮以為布，又擣以為紙，謂之穀布紙，長數丈，

(1) 國分直一，1953, pp. 51-52.

(2) (3) 國分直一，1953, p. 49 引。

潔白光輝，其裏甚好，其葉初生，可以爲茹。

陸機三國時吳人，生於公元後第二世紀，時江南人績樹皮爲布。至於‘擣以爲紙’，在下文再討論。此後以樹皮爲衣冠，常見於史志。如後漢書卷一一三周黨傳：

周黨字伯況，太原廣武人也。……著短布單衣，穀布綃頭，待見尙書。注曰：以穀樹皮爲綃頭也。

又東觀漢記卷十六周黨傳：

建武中，徵黨，著短布單衣，穀布幪頭待見，尙書欲令更服。黨曰：朝廷以是徵之，安可復更。遂以見也。

范書的綃頭，漢記的幪頭，又名幪頭。綃頭詳解見向栩傳注後漢書卷一一三云：

向栩字甫興，河內朝歌人。……爲被髮，著綃頭。注曰：說文：綃，生絲也。從糸肖聲音消。其字當作幪，音此消反，其字從巾。古詩云：‘少年見羅敷，悅巾著幪頭’。鄭玄注儀禮云：如今著幪頭，自頂中而前交額上却繞髻也。集解惠棟曰：方言云自河以北，趙魏之間曰幪頭；廣韻云：斂髮謂之幪頭，亦作幪。

所謂幪或幪頭，斂髮之巾也。古樂府有云：“脫帽著幪頭”。綃頭或以糸爲之，穀布綃頭，以穀樹皮布爲綃頭。絳綃頭或以穀樹皮布染紅色做的綃頭。

自南北朝以至隋唐，楮皮冠或穀皮巾在華北一直沿用，如梁書卷五一張孝秀傳：張孝秀字文逸，南陽宛人也。……孝秀性通率，不好浮華，常冠穀皮巾，躡蒲履。

又南史卷四九劉訐傳云：

訐常著穀皮巾，披衲衣，……在林谷之間，意氣彌遠，或有遇之者皆謂神人。

至唐蘇恭的唐本草（李自珍本草綱目卷三六引）

楮有二種：一種皮有斑花文謂之斑穀，今人用皮爲冠者。

上言以穀樹皮爲巾或冠，冠之形制雖不可知，至於巾，今阿美人所製樹皮巾的標本四件⁽¹⁾，製作很簡單，剝取樹皮熟槌成巾而已。

(1) 凌曼立，1960, p. 329

至於樹皮製衣，始見於上引陸氏詩疏謂江南人績其皮以爲布。劉宋陶隱居名弘景（456—540），名醫別錄（本草綱目卷三六引）云：

陶隱居云：楮卽今穀樹也。穀音構，南人呼穀紙亦爲楮紙，武陵人作穀皮衣，甚堅好。

明李自珍本草綱目卷三六云：

楮，按許慎說文言楮穀乃一種也。不必分別，維辨雌雄耳。雄者皮斑而葉無極叉，三月開花結長穗如柳花狀，不結實，歎年人采花食之。雌者皮白而葉有極叉，亦開碎花，結實如楊梅，半熟時水澡去子，蜜煎作果食。二種樹並易生，葉多澀毛。南人剝皮搗煮造紙，亦緝練爲布，不堅易朽。

由上所錄，可見中國人在公元前六世紀時，有用穀樹皮爲衣冠的記載。然以樹皮爲衣冠的文化，必早就存在，如禹貢的島夷卉服，如依明鄺露赤雅卷上卉服條的解釋云：

南方草木可衣者曰卉服，績其皮者有句芒布。

則島夷的卉服，亦可包括樹皮布在內。這一樹皮布文化在中國境內，繼續存在，直至現在尙未完全消失。

四、樹皮布在中國古代的地理分佈

中國古代樹皮布的名稱，有榻布，答布，都布，納布，楮皮布，穀皮布等名。此外尙有竇布，幪布，斑布，筒布等可能亦是樹皮布。後漢書卷一一六南蠻西南夷列傳，槃瓠種的武陵蠻：

織績木皮，染以草實，好五色衣服，制裁皆有尾形。……衣裳斑蘭，語言侏離。……秦始皇使白起伐楚，略取蠻夷，始置黔中郡，漢興改爲武陵。歲令大人輸布一匹，小口二丈，是爲竇布。巴郡南郡蠻，……其民戶出幪布八丈二尺。說文：“幪，南郡蠻夷竇布，从巾家聲”。照許慎之說，竇幪是一物。上引後漢書所載蠻夷之布，‘織績木皮，染以草實’，竇幪爲木皮布，可無疑問。

至於斑布，其名或起於後漢書的‘衣裳斑蘭’，指樹皮布上的文飾而言。又或如唐本草的楮之一種，‘皮有斑花文謂之斑穀’而來。筒布，或如揚雄蜀都賦：“筒中黃潤，一端數金”。司馬相如凡將篇：“黃潤纖美，宜制禪”。黃潤或爲筒布中的上品。

王先謙後漢書集解以此注馬援傳的‘都布單衣’。可見筒布即都布，又太平寰宇記的都落布可能同是樹皮布。

現在敘述古代樹皮布的地理分佈，多取材於古文獻上所記樹皮布的產銷地區，所謂產即出產樹皮布之地，銷以樹皮布為衣冠，而未明言是土產。在上引錄的文獻中有關地理分布者，如韓詩外傳的‘原憲居魯，楮冠黎杖’。陸機詩疏的‘今江南人績其皮以為布’。後漢書馬援傳的‘公孫述稱帝於蜀……為援制都布單衣，交讓冠’；又周黨傳：‘太原廣武人，著穀布綃頭’。宋書徐湛之傳，‘初高祖（劉裕彭城人，晉氏東遷，劉氏移居晉陵丹徒之京口里）微時，有衲布衫襖等衣’。梁書張孝秀傳，‘南陽宛人，常冠穀皮巾’。南史劉訐傳：‘常著穀皮巾，披衲衣’。陶隱居云：‘武陵人作穀皮衣，甚堅好’。以上所錄樹皮布產銷之地，已有魯，江南，蜀，廣武，丹徒，南陽，武陵等地，其分佈地區稍偏於華北與華中。

下文繼續記述樹皮布地理分佈偏於華南，材料的排比依時代的先後。裴淵廣州記（御覽卷九六〇引）曰：

蠻夷取穀皮熟搗為褐，裹髻布，鋪以擬襪。

顧微廣州記（御覽卷八二〇引）曰：

阿林縣有勾芒木，俚人斫其大樹半斷，新條更生，取其皮，績以為布，輒滑甚好。

阿林縣，漢置，宋省。故治在今廣西桂平縣東。郭義恭廣志（御覽卷七九一引）曰：

墨黻濃在永昌西南，山居耐勤苦。其衣服婦人以一幅布為裙，或以貫頭。丈夫以穀皮為衣。

唐樊綽蠻書卷四：

裸形蠻在尋傳城西三百里為窠穴，謂之野蠻。其男女遍滿山野，亦無君長。作攜欄舍屋，多女少男。無農田，無衣服，惟取木皮以蔽形。

在唐元和八年（813）刊行李吉甫的元和郡縣圖志卷三十江南道六：

溱州貢賦，開元貢茄子，楮皮布，紵布，黃蠟。

唐置溱州，故治在今四川碁江縣南，接貴州桐梓縣界。開元唐玄宗年號，紀元七一三至七四一年，當時溱州的楮皮布列為貢品。同書卷二六江南道二：

處州貢賦：元和貢緜，紵布，麻布，樹皮布，小綾，紗，絹，緜紬。

隋置處州，在今浙江麗水縣東南七里。元和（806—820）唐憲宗年號。可見中國在西元第八、九兩世紀，內地的四川，和沿海的浙江，多產樹皮布，品質必甚精美，故能列入貢品。

至宋初，樂史所撰太平寰宇記卷八八，劍南東道七云：

昌州土產：班布，筒布，今貢絹。

同書卷一四一，山南西道：

商州土產楮皮布。

卷一四七山南東道：

峽州風俗：士女事麻楮，不事蠶桑。

卷一五九嶺南道三：

端州風俗：有夷夏人，織蕉，竹，紵，麻，都落等布以自給。

卷一六四嶺南道八：

康州土產都落布。

卷一六七嶺南道十一：

容州陸川縣：白石山，色潔白，四面懸絕上有飛泉瀑布，下有勾芒木，可以為布，俚人斫之，新條更生，取皮績以為布。

卷一六九嶺南道十三：

瓊州風俗：有夷人號曰生黎，巢居洞深，績木皮為衣。

太平寰宇記是第十世紀，宋初的中國及四夷的地理全書，當時樹皮布的地理分佈：昌州在今四川的榮昌大足等縣；商州今陝西商縣；峽州在今湖北宜昌縣境；端州即今廣東高要縣；康州即今廣東德慶縣治；容州陸川縣在今廣西有容縣與陸川縣，瓊州在今之海南島。宋初樹皮布的分佈，約言之北起自陝南，中經四川兩湖而兩粵，迄於海南島。

又宋朱輔的溪蠻叢笑圈布條云：

桑味苦，葉小分三叉，蠶所不食，玃取皮績布，繫之於腰，以代機經緯，叵環通不過丈餘名圈布。

上文所錄恐有訛誤，至於‘玃取皮績布’，文義雖不確言是否為樹皮布，取皮績布當

是製樹皮布法。又同書點蠟幔條云：

溪洞愛銅鼓甚於金玉，模取鼓文，以蠟刻板印布，入靛缸漬染，名點蠟幔。所謂‘以蠟刻板印布’，很像現在太平洋區的樹皮布文飾中的鏤空花板(stencil)製法⁽¹⁾。宋代的溪蠻，即漢之五溪蠻地，早以產樹皮布著稱。

在元代馬端臨的文獻通考卷三三〇的黑黠濮‘其衣服婦人以一幅布爲裙或以貫頭，丈夫以穀皮爲衣’，此段與前引晉郭義恭廣志文同。又卷三三一黎峒條云：

黎峒其地有黎母山，黎人居焉。舊說五嶺之南，人雜夷獠，珠崖環海，豪富兼併，役屬貧弱，婦人服緹縷，績木皮爲布。

此外在元代的貴州 (Cuiju) 或敘州尙有樹皮布的記載。馬可波羅遊記第五十九章：

居民用某種樹皮做布，甚麗，夏季衣之。

上引的原文是：“They manufacture stuffs of the bark of certain trees which form very fine summer clothing”⁽²⁾中國學者多數以爲布由紡織而成，所以馮承鈞氏不譯 manufacture 一字爲‘做’而譯爲‘織’⁽³⁾，殊不知既稱樹皮布，製作不用織而由槌打而成。

迨明清兩代，中國樹皮布的分佈，僅在邊徼的滇桂等省及沿海的海南臺灣等島尙能保存這種 *tapa* 文化。

如道光雲南通志稿卷一八七南蠻志：

野蠻，舊雲南通志云：居無屋廬，夜宿於樹巔，赤髮黃睛，以樹皮毛布爲衣，掩其臍下。在茶山李麻之外，去騰衝千餘里。舊志稱尋甸巖谷野蠻以木皮蔽其身。

照上錄則雲南有兩種野蠻，一在極西；又一則在東部，尋甸縣在昆明東北約二日程，所以舊志疑其有誤。

在清代廣西種人風土的記載雖多，然用樹皮布爲衣的著錄則甚少，如嘉慶廣西通志卷一七八云：

(1) 凌曼立，1960, p. 340.

(2) Yule, 1926, p. 124.

(3) 馮承鈞，1935, p. 508.

全州西延洞皆獠人居，以布織頭，紅布者曰隘獠；青布者曰令勾獠；績木皮爲鎧曰狗獠。

又同書同卷有永福縣：

有白獠，居毛峒里定二里，衣縞素，以錫飾笠頂，望之皆白，故名；亦稱木皮獠。

獠名木皮獠，最可能的解釋，以樹皮布爲衣料，故稱木皮；又或永福獠人，多用木皮爲屋，因此得名。‘績木皮爲鎧’或與古代的紙甲有關，詳見另文。又粵西叢載卷二十一引梧潯雜佩云：

嶺南人當有媿於竹，食者竹筍，庇者竹瓦，載者竹筏，爨者竹薪，衣者竹皮，書者竹紙，履者竹鞋，真可謂一日不可無此君也耶。

上錄中的‘衣者竹皮’，Eberhard 氏以爲亦是樹皮布的一種⁽¹⁾，著者懷疑竹皮不能製布，在幼年曾見先祖父的竹製汗衫，以長一公分半，徑兩厘的細竹節，穿線結成方格形的汗衫，穿在長衫內可以禦汗使外衣不溼。

至於海南島的黎人的樹皮布，清初顧炎武天下郡國利病書第二十九冊廣東下所載黎人的短衣名黎桶或即樹皮布所製。臺灣的樹皮布在本世紀初尙存，直至現在這一文化特質尙不能說完全消失，詳見凌曼立文。

由上可見，樹皮布文化在中國的起源甚古，可能早至石器時代，與印紋陶同時存在，在用麻絲紡織之前，如在史前考古學上能找到槌打樹皮布的石棒(stone-beater)，則今分佈在整個太平洋區的樹皮布文化，可以假定是起源於中國的。但在目前我們至少可說，如前引文獻上的原憲楮冠黎杖，在公元前第六世紀，尙在用樹皮布做衣冠。且此一文化在中國境內繼續存在，不過自華北逐漸向南經華中而至華南，直至二十世紀初葉在中國的邊徼地區及沿海島嶼還能找到這一文化特質。

五、蔡侯紙發明前的幡紙與絲紙

在第二世紀初年(105)蔡倫發明造紙術，但在其前中國已有幡紙、絲紙，又有名赫蹏的薄小紙。因此古今中外研究紙史的學者，有不少人懷疑紙不是蔡倫發明的。本

(1) Eberhard, 1942, p. 277.

文的主旨在題文上已表明白，要在研究蔡倫發明造紙術是受中國古代有悠久歷史的樹皮布文化直接影響的，以往學者忽略了此點，以致聚訟紛紜，迄無定論。著者現擬對於此懷疑的問題，試予以總解答，將蔡倫以前的三種紙，一一研究清楚；再進而研討蔡倫所以能發明造紙的原因，並確定蔡侯紙在中國紙史上已是第四種紙了。

外國的漢學家和科學家，研究蔡倫發明造紙術的論文已不算少；但在歷史方面的鑽究，遠不如國人的淵博。國內學者姚從吾勞貞一李潤章三位先生近三十年來先後發表與造紙發明有關之重要論文三篇，多論及蔡倫發明造紙以前的紙，然皆未提到樹皮布。民國三十七年勞氏發表論中國造紙術之原始一文的結語說：

綜所述，關於紙的發明一件公案，可以作下列的假定：

- 甲、早期的紙是用絲絮黏成的，也就是所謂赫蹏，在西漢的晚年已經有了。
- 乙、在明帝時經傳已經用紙來寫，這當然不是薄小紙的赫蹏，而是赫蹏以外的紙，很可能已經用絲以外的材料造紙了。
- 丙、到和帝的晚年，蔡倫為尚方令，始採用魚網造紙之法。因此造紙之法更加進步⁽¹⁾。

照上勞氏之說，中國在西元一〇五年時，已有用三種質料不同所造的紙：一是用絲絮黏成的赫蹏，可稱為絲紙；二為用絲以外的材料造的紙；三即蔡倫用魚網所造之紙。如再加上古用絲織成維帛的幡紙，則早在第二世紀初年，中國已有四種質料不同的紙了。

民國四十四年李潤章先生發表造紙的發明及其傳播一文，他將中國古書中記載蔡倫造紙以前的紙，錄出四處：

- (一)三輔故事：‘衛太子（太子據）大鼻，（漢）武帝病，太子入省。江充曰：上惡大鼻，當持紙蔽其鼻而入；帝怒’。
- (二)前漢書（卷九下）外戚傳，敘述漢成帝趙婕妤好時，有‘篋中有裹藥二枚赫蹏書’的記載，事在元延元年（西元前一三年）。應劭（西元二世紀末三世紀初）曰：‘赫蹏薄小紙也’。宋蘇易簡文房四寶（西元九八六年著）引孟康曰：‘赫蹏

(1) 勞赫，1948, p. 495.

染黃素令赤而書之，若今黃紙也’。兩種解釋各不同。宋史繩祖（約西元十三世紀上半期）學齋佔畢推論說：紙已見於前漢，恐非始於蔡倫。

（三）後漢書（第六六）賈逵傳：‘建初元年（西元七六年）詔逵入講北宮白虎觀，南宮雲臺……令逵自選公羊嚴顏諸生高材者二十人，教以左氏與簡紙（竹簡及紙）經傳各一通’。

（四）後漢書（第十三）和熹鄧皇后傳：‘（和帝永元）十四年（西元一〇二年）夏，陰后以巫蠱事廢，至冬立（鄧貴人）為皇后。是時方國貢獻，競求珍麗之物，自后即位，悉令禁絕；歲時但貢紙墨而已。

根據上錄的史實，李氏綜合解釋說：

照以上這幾個記載看來，似乎是不但蔡倫造紙以前的東漢時代已有紙，而且遠在蔡倫以前約兩百年的漢武帝時代亦已有紙。所謂‘持紙蔽鼻’之紙，及‘簡紙經傳’之紙，與所謂‘薄小紙’的‘赫蹏書’，或‘歲時但貢紙墨’之紙，既均在蔡倫上奏造紙以前，照蔡倫傳的解釋，均應為維帛。然根據說文，蔡倫以前已有絲紙，則三輔故事及前後漢書所載蔡倫以前的紙，似應為絲紙。

又李氏與勞氏一樣，懷疑蔡倫之前，除幡紙與絲紙外，尚有第三種紙，但他較勞氏進一步，假設‘以植物質試驗作紙’，他說：

除了幡紙（維帛）與絲紙以外，在蔡倫以前或者早就有人以植物質試驗作紙。但完全作成功的却是蔡倫。蔡倫所發明的紙，與以往的紙完全不同，所以稱為蔡侯紙。後來省去‘蔡侯’二字，直稱曰紙。

由上可見李氏的‘以植物質試驗作紙’之紙，亦即勞氏的‘用絲材料以外的材料造的紙’，著者稱之為‘蔡侯’紙之前的第三種紙，這種紙可名之曰樹皮布紙，或簡稱樹皮紙。所以我們研究蔡倫造紙的發明，應先知道由幡紙，絲紙，而樹皮紙演進的歷史，始能明瞭蔡侯紙亦即真紙，是經過長期演變進步逐漸成功的。

幡紙 王隱晉書曰：

魏太和六年，博士河間張揖上古今字詁，其巾部紙今昏也，其字从巾。古之素帛，依書長短，隨事截絹。枚數重沓即名幡紙，此形聲也。

又初學記三十一紙部敘事：

釋名曰：‘紙砥也，謂平滑如砥石也’。古者以織帛依書長短，隨事截之，名曰幡紙，故其字從系。貧者無之，或用蒲寫書，則路溫舒截蒲是也。

由上可見所謂幡紙，是用絲織成的絹，‘數枚重沓’的加工之後，始名幡紙。絹與織的不同，明田藝蘅留青日札：‘絲厚而疎者曰絹；絹之兼絲而細密者曰織’。漢劉熙逸雅：‘織，兼也；其絲細緻數兼於布絹也。細且緻不漏水也。’可知絹織是同類，但有疎密之別。又曹昭古畫論：‘唐絹絲麤而厚，或有搗熟者’。所以幡紙的製造，先將絲織的絹織，數塊複疊起來即所謂‘枚數重沓’，加工使之合成平滑如砥石的紙。釋名的‘紙砥也，謂平滑如砥石’。亦可能幡紙即在砥石上造成。整個製造過程或可假定先將絲厚而疎的絹，或經搗熟，數枚重沓黏合，放在砥石上加工壓緊而後磨光，或如今裱糊書畫之法。

如果照上法製成的幡紙，當然價值貴昂，所以初學記說：‘貧者無之，或用蒲寫書’。至於路溫舒截蒲事見漢書卷五一路溫舒傳：

路溫舒字長君，鉅鹿東里人也。父爲里監門，使溫舒牧羊。溫舒取澤中蒲，截以爲牒，編用寫書。注師古曰：小簡曰牒，編聯次之。

因此幡紙較之織帛更貴，竹木作簡又重，所以民間截蒲爲牒，編以寫書，既較竹木輕便而又價廉。

絲紙 中國古代是否製造絲紙，中外學者迄今尙在爭訟。勞榘氏認爲紙的製造應從蠶絲衍化而來。他說：

將破碎的蠶繭，黏着在一塊兒，遠較將蠶絲抽出來織成織帛爲價廉；紙的發現和製造，就應從這個原理出來。又說：紙既由絮造成，所以御覽六〇五引服虔通俗文‘方絮曰紙’。正是紙的初義。

李潤章先生對於古代絲紙的有無，則在信疑之間，他信說文說：

漢許慎說文是西元 100 年作成的書，即蔡倫發明造紙以前的書。說文解字：‘紙，絮一箔也，從絲’；又‘絮，敝絲（即粗絲）也’；‘箔，漉絮簣（即席）也’；‘漉，於水中擊絮也’。這就是說：在水中擊粗絲，用席提取作成‘紙’。段玉裁

(1) 勞榘，1948, p. 492.

(西元1735—1805年) 說文解字注：‘按造紙昉(即始)於漂絮，其初絲絮爲之，以箔薦而成之。今用竹質木皮爲紙，亦有緻密竹簾薦之是也’。……然則說文中之所謂‘紙’，其製法與今相同，所不同者，其原料爲蠶繭之粗絲，是動物質的纖維。

他又懷疑古代絲紙的存在說：

古代用織帛寫字者，固甚普通，然用絲紙寫字者，則古書中似尙未見有明白的記載，中國西北亦無實物的發現。沙畹 (Edouard Chavannes) 疑絲紙的存在，僅曇花一現⁽¹⁾。阮克 (Armin Renker) 指出絲的纖維無膠質 (colloid) 的性質，這種性質對於作成紙頁非常重要；因此認爲絲紙製造的或然性頗少。阮氏又假定所謂絲紙，係絲與其他物質混合所造之紙。阿里保 (Henri Alibaux) 在其所著紙的發明文中且稱：凡知造紙者，均不能了解何以古時能以絲造紙？吾人希望將來中國西北有實物發現來幫助解決這個疑問⁽²⁾。

中國之有絲紙，照文獻上的記載，似無疑問；且在蔡侯紙發明以後，仍是繼續製造，如宋劉義慶世說 (格致鏡原卷三六引) 言王羲之之書蘭亭序用蠶繭紙。

蘇易簡紙譜亦云：

羲之之永和九年製蘭亭序，乘樂興而書，用蠶繭紙鼠鬚筆，遒媚勁健，絕代更無。

又格致鏡原卷三七引蘇易簡紙譜云：

蜀人以麻，閩人以嫩竹，北人以桑皮，剡溪以藤，海人以苔，浙人以麥鋤稻桿，吳人以繭，楚人以楮。

米芾書史有詩云：

越筠萬杵如金版，安用杭油與池繭，高壓巴郡烏絲欄，平欺澤國清華練。

王羲之之晉人，蘇易簡米元章皆宋人，且王米二人均爲古之大書家，多用蠶繭紙或稱池繭紙作書，可見在宋時絲繭紙尙繼續製造，至清初，造絲紙法在國外和邊徼猶有存者，如清谷應泰博物要覽：

(1) Chavannes, 1905, p. 12.

(2) 李書華, 1955, pp. 2-3.

高麗紙以綿、繭造成，色白如綾，堅韌如帛，用以寫字作書，發墨可愛，此中國所無，亦奇品也。

上雖說中國所無，但在新疆於乾隆三十七年(1775)以前，似尚有以絲和桑皮及棉花造紙，蘇爾德著福森布序的新疆回部志鈔本卷二各城雜誌第二十八云：

回子紙有黑白二種，以桑皮棉絮和作，粗厚堅韌，幅不盈尺，用石子磨光，方堪寫字。

上引文中的‘棉絮’二字，Laufer 氏分開譯作棉布 (cotton) 與廢絲 (silk refuse)⁽¹⁾，設其言不誤，則在十八世紀末葉，中國境內所產，亦非純粹的絲紙。

六、前漢書的赫蹠書即為樹皮布紙

所謂樹皮布紙在此應先說明以樹皮打成的布或紙，可說是用力經物理作用造成的布紙，以別於蔡倫以樹皮等經物理和化學作用所製的紙。所以樹皮紙最好名之曰樹皮布紙，意義更較明顯。前引漢書外戚傳的‘赫蹠書’，勞榘王明兩氏認為是用絲絮黏成薄小紙的赫蹠書是絲紙；陳槃氏則以為“赫蹠乃絮紙之前身亦可謂紙之雛形”⁽²⁾。著者現在假定漢書的‘赫蹠書’是樹皮布紙而非絲紙。試述我們的論證如下。

周法高先生在勞榘氏文後寫了一篇論中國造紙術之原始後記⁽³⁾，他先引 Laufer 氏舊布紙 (rag-paper) 節文說：

Horn 氏以為波斯文中的漢語借字，也許有 *kāgad* 或 *kagid* (紙)。Hirth 氏曾說從波斯文得來的阿剌伯字 *kāgid* (紙)可以回溯到漢文的‘穀紙’(古讀 *kok-dz*)。此說為 Karabacek 和 Hoernle 兩氏所採。Laufer 反對此說。他認為這個波斯——阿剌伯字 (Persian-Arabic word) 是借自一種突厥語 (Turkish language): Uigur, *kagat* 或 *kagas*; Tuba, Lebed, Kumandu, Comanian, *kagt*; Kirgir, Karakirgir, Taranči 和 Karan, *kagar*。這個字的來源可以從突厥語得到解釋：因為在 Label, Kumandu 和 Sor，我們有 *kagas*，解作‘樹皮’。此外，在印度 (Indian) 語中：Hindi *kāgad*, Urdu *kāgar*, Tamil *kagidam*, Malayalam *kāyitam*, Kannada *kagada*, Kāçmīrī *kakar*；在印

(1) Laufer, 1919, p. 562.

(2) 勞榘, 1948, p. 492; 王明, 1950, p. 216; 陳槃 1954, p. 264.

(3) 周法高 1948, pp. 499-500.

度支那 (Indo-Chinese) 語中：Siamese *kadat*, Kanauri *kaglī*⁽¹⁾。唐禮言梵語雜名：紙，‘迦迦里’ *kakari*；義淨梵語千字文：*kākali* ‘迦迦哩’，紙⁽²⁾。周氏認為以上諸語，恐與漢文‘赫蹠’諸詞有關。廣雅釋器‘幪幌謂之柞’。王念孫疏證：

廣韻引埤倉云：‘幪幌，赤紙也’。漢書外戚傳，‘赫蹠書’。應劭注云：‘赫蹠，薄小紙也’。顏師古注云：‘今書本赫字或作擊’。說文‘繫’‘紉’二字注並云：‘繫紉也’。赫蹠，擊蹠，繫紉，並與幪幌同。

上述諸詞；經周氏的研究，其語音為 *kiek* 或 *xak* 和 *diei* 或 *liei* 等相近。如幪幌果為 Hirth 氏說的阿拉伯字的 *kügdü* (穀紙)；Peilliot 謂古畏吾兒語的 *kügdü* (紙)，蒙古語的 *qaxudasun* (紙頁)⁽³⁾；以及 Laufer 所謂突厥語的樹皮，則漢書的‘篋中有裹藥二枚赫蹠書’的記載，事在元延元年 (西元前一三年)，中國西元前早已有穀紙，或用其他樹皮造紙。但這種紙是用樹皮打成的布紙。

這種打成的樹皮布紙或稱穀布紙是起於南方的。在蔡倫發明造紙之前已存在，在蔡侯紙以後仍繼續製造。如上文所引陸璣詩疏：‘穀，荆揚交廣謂之穀，中州人謂之楮；今江南人績其皮為布，又搗以為紙，謂之穀布紙，長數丈，潔白光輝，其裹甚好’。可見‘穀’是‘楮’的譯名，有時亦譯媵或構，與穀字的本義無關。李自珍本草綱目卷三六：‘楚人呼乳為穀，其皮中白汁如乳，故以名之’。李氏此說，恐非事實。今泰語方言中的 *khau* 義為打。詩疏的穀布，或即為後漢書南郡蠻的幪布。幪亦是譯音，與穀或因時地不同而同音異寫。最使吾人驚異的今夏威夷人的樹皮布亦名 *kapa*，義為打擊⁽⁴⁾。

陸璣三國時吳人 (西元261—303)，在蔡倫之後，所謂‘今江南人績其皮為布’，中國古書載製樹皮布，用績或緝，‘績’，繼也；‘緝’，接也。可解釋以樹皮的塊或條，繼或接起來打製成布；‘又搗以為紙’，亦可解作再打成紙。所以用樹皮打成的布或紙，同是一物，但有厚薄的不同。又‘穀布紙，長數丈’，以樹皮拼接上去而繼續的打，即可打造成長數丈的穀布紙。蔡侯紙須用紙籬抄紙漿，造成之紙每張僅數尺而已。

(1) Laufer, 1919, pp. 557-559.

(2) Bagchi, 1929, pp. 60, 154.

(3) Bagchi, 1929, p.28.

(4) Hunter, 1947, p. 29.

關於漢書‘赫蹏’一語的來源問題，周法高氏說：

至於此語的來源如何，我還不敢斷定，說文解作‘惡絮’，漢書注解作‘紙’，Laufer引突厥語，解作‘樹皮’，其原始意義也不敢確定。

漢書的‘赫蹏’，說文作‘繫紕’，廣雅的‘幪幌謂之忤’，顏師古漢書注作‘擊蹏’。可見上述‘赫蹏’等詞多是譯音，字無一定的寫法。應劭云：“赫蹏，薄小紙也”。著者現敢假定此語來自古代南方蠻夷民族。Laufer氏謂今之苗夷語的紙，苗曰 *ndöü*，泰語方言之一的 Paten, *do*；羅羅方言中：Lolo-p'o, *ta-vi*；Nyi, *t'o-i*；A-hi, *t'u-yi*；P'u-p'a, *t'ö*；又白土人 *t'i*，大板蠻 *t'öi*，白苗 *taö*。Laufer 說是苗夷尚保存了漢語紙 *či* 的古音 *di*⁽¹⁾。不如說漢語的忤，或是由苗夷語借來的。

現在再進一步研究苗夷語彙中的樹，皮，布，紙等的關係。茲先舉著者等做過實地調查的湘西苗族調查報告書中所載的語彙：

樹	<i>ko₁-ndu₁</i>
樹根	<i>ko₁-deioŋ₁-ndu₁</i>
樹枝	<i>ko₁-keɣ₁-ndu₁</i>
樹皮	<i>ko₁-teiɣ₁-ndu₁</i>
樹葉	<i>ko₁-nu₁-ndu₁</i>
布	<i>ndeiv</i>
麻布	<i>ndeiv-no₁ (ndeiv-noŋ₁)</i>
書(紙、字)	<i>ndaɣ₁</i> ⁽²⁾

上錄湘西苗語中的樹 *ko-ndu*；樹皮，*ko-teiɣ-ndu*；布，*ndeiv*；紙，*ndaɣ*。我們很易看出四者的關係，尤其是布 *ndeiv* 和紙 *ndaɣ* 音很相近。又嚴如煜的苗防備覽卷九所收瀘溪乾城的犵獠語彙中有‘呼布曰臺’，亦與苗語布音可說相同。

又據 Bonifacy 氏越南白河 (Rivière Claire) 上游許多土族的語彙中的紙：白土人 (Tho blanc) 稱紙曰 *t'i*；蒙人 (Mon)，*ti*；白老撾人 (Lao blanc)，*khi*；大板猿 (Man Ta-pan)，*t'öi*；泰族之一的 Pa-ten 人，*dó*；白苗人 (Meo blanc)，*tàd* 黑羅

(1) Laufer, 1919, p. 610.

(2) 凌純聲, 1947, pp. 459-468.

羅 (Lolo noire), tsi⁽¹⁾。

現在再進一步根據 Savina 氏所著法屬印度支那語言指南⁽²⁾書中摘錄：紙，布，樹皮，打槌四語作一比較表如下：

漢語	越語	土語	傣語	苗語	粵語	福老語
紙	gi'â; chĩ.	chiã; chĩ.	ch'éy; chi'ěy.	nd'ou,	chĩ	toã
布	vãi; b'ò.	p'ãi.	búi	ndâu.	páu; páu p'ăt.	bou; paũ phi'èt
樹皮	võcây.	năngmay.	ghi'ang dôpo; khũ.	t'oundông.	sup'èi; p'i.	sũuprô'y.
打	dánh	con; hon; khou; tap; tup.	bapo; chã	ndâu.	tã	pha

根據上表的語彙，我們可以假設，漢書的赫蹏是由苗語而來，王先謙漢書補注赫蹏書云：

鄧展曰：赫音兄弟鬩牆之鬩。

應劭曰：赫蹏，薄小紙也。

晉灼曰：今謂薄小物爲鬩蹏。

孟康曰：蹏，猶地也，染紙素令赤之，若今黃紙。

王先謙引沈欽韓曰：玉篇，幪幪，赤紙也。

周壽昌曰：據此西漢時已有紙可作書矣，赫狀其色赤，蹏狀其形小。

上列諸注家，除應劭外，餘多是望文生義自作解釋而已。姚從吾氏謂‘赫蹏之名甚奇’⁽³⁾，又有‘擊蹏’、‘繫蹏’、‘鬩蹏’諸異寫，凡稍具近代民族語言學常識者，一望就可

(1) Bonifacy, 1905, p. 315.

(2) Savina, 1939, pp. 79, 310, 371, 882.

(3) 姚士鰲, 1928, p. 12.

猜想到是夷語漢譯，今苗語紙據 Savina氏曰 *nd'ou*，Bonifacy 氏的白苗語曰 *tàð*，湘西紅苗語曰：*ndaɿ*，此與‘赫蹠’照鄧展所謂赫音兄弟闌牆之闌，故又寫作闌蹠之音可說相同，又周法高氏的赫蹠為 *kiek-diei* 音亦近似。此可證明赫蹠一詞是苗語的音譯。

又苗語中的布曰 *ndei* 或 *ndâu*，猺語曰‘臺’；此不僅與苗語的紙音相同，而且紙即是布，二者同是一物，故古代的闌蹠亦寫作欄幌，字從巾亦可解釋欄幌為布。

今之南島 (Austronesian) 語中樹皮布的最普通的名稱為 *tapa*⁽¹⁾，次為 *kapa*⁽²⁾ 二語，義均為打槌。前者在中國史志中為榻布，答布，都布，寶布；後者為幪布，構或穀布及日本的楮栲布等語。我們都能在苗夷語中找到其根源。著者不是語言學者，在此不敢多說，但似乎樹皮布紙一語，在古代即分為榻布*tapa*系，苗語及猺語屬之；幪布*kapa*系，泰語和傣語屬之。周法高氏研究漢書的赫蹠是屬於 *tapa* 系；Horn 氏以為波斯文中的漢語借字，有 *kāgad* 或 *kagid* (紙)；Hirth 氏所說阿剌伯語中的 *kāgid* (紙)，Laufer 氏說的突厥語的 *kagat* 或 *kagas*，解作樹布，他們都對，都是源於 *kapa* 系的。且在遠古榻布 *tapa* 和幪布 *kapa* 是同源的，這一語源的研究，似可追溯到張光直氏所說：“未分化的漢藏南島文化 (Undifferentiated Sino-Tibetai Austronesian Complex)，是古漢藏文化，同時是古南島文化”⁽³⁾。甚至我們可以假設，漢語紙 (ti) 及紙 (tse) 是由赫蹠遞變而來的，古之赫蹠即今苗語的 *ndei* 和猺語的‘臺’，再溯上去而到 *tapa*。希望語言學家，能作更深與更廣的研究，對此疑問，予以肯定或否定。

赫蹠一詞既由語言上證明來自苗語的 *ndei* 和猺語的‘臺’，其義為布，而苗語中的紙字，音亦相近。在陸機的詩疏裏的穀布與穀紙同是一物，說得很明白。

又晉虞預表 (格致鏡原卷三七引) 云：

秘府有布紙三萬餘枚，不任寫御書而無所給，愚欲請四百枚，付著作吏書寫起居注。

虞預在東晉元帝太興 (318—321) 中遷秘書丞，著作郎，請布紙當在此時，可見自後

(1) Dempwolff, 1938, p. 131.

(2) Hunter, 1947, p. 29; Dempwolff, 1938, p. 86.

(3) 張光直, 1959, p. 65.

漢蔡侯紙發明後，在魏晉時，布紙仍在續造，且較為珍貴，藏之秘府。這一樹皮布紙文化，後迨唐宋而元明，一直繼續存在，不過布紙用途不僅寫字，且用於造紙幣、紙甲、紙衣、紙帷及紙帳等物。

在今日尚有用樹皮布紙寫字作畫者，禮失而求諸野，可在民族學上去求物證，如現在印尼羣島中的爪哇，馬都拉 (Madura)，蘇門答臘及西里伯斯沿海地區用粗的樹皮布包物，細布用作寫字之紙。直至最近爪哇和馬都拉造樹皮布紙的工業很盛，因為有力守舊的風俗仍造這種古紙用以寫字。

在中美古代的馬耶人亦用樹皮布作書畫之紙，如圖版壹：A 為第九至第十世的 Dresden Codex，又圖版壹：B 所示約為1530年的 Codex Telapalco 至今墨西哥南部的印第安人的 Otomi 族，仍繼續製造古之樹皮布紙，如圖版貳所示⁽²⁾。至於太平洋區的其他盛產樹皮布之地，雖不用作紙寫字，然文飾其樹皮布，用繪畫與印板等方法，其功用已與紙無別。

七、蔡倫發明造紙術與樹皮布文化

以上兩節所敘述的為蔡倫發明造紙術之前，古代已有的幡紙，絲紙，及赫蹏書或穀布紙的三種紙類，所以蔡倫發明的在中國造紙史上已是第四種紙。所謂第四種紙即後漢書所稱的蔡侯紙，是與樹皮布文化有密切的關係。我們現在先看後漢書卷七八蔡倫傳云：

蔡倫字敬仲，桂陽人也。以永平末，始給事宮掖。建初中為小黃門，及和帝卽位，轉中常侍，豫參帷幄。倫有才學，盡心敦慎，數犯嚴顏，匡弼得失。每至休沐，輒閉門絕賓，暴體田野。後加位尚方令，永元九年監作秘劍及諸器械，莫不精工堅密為後世法。

自古書契多編以竹簡，其用緜帛者謂之紙；緜貴而簡重，並不便於人。倫迺造意用樹膚麻頭及敝布魚網以為紙。元興元年(105)奏上之，帝善其能，自是莫

(1) Kennedy, 1934, pp. 229-230.

(2) Hunter, 1947, pp. 25-30.

不從用焉。故天下咸稱蔡侯紙。

由上蔡倫傳中的材料，而來研究他的造紙與樹皮布的關係：

第一、蔡倫的籍貫問題，照上本傳‘桂陽人也’。晉羅含湘州記曰：

耒陽縣北有漢黃門蔡倫宅，宅西有一石臼，云是倫春紙臼也。

洪亮吉（後漢書注引）：

案注引湘州記耒陽縣北黃門蔡倫宅，則倫桂陽耒陽人。

但宋蘇易簡紙譜引晉庾仲雍明州記（或明紀之誤）云：

應陽縣蔡子池，南有石臼，云是蔡倫春紙臼也。

又劉宋盛宏之荊州記云：

棗陽縣一百許步，蔡倫宅其臼具存，其傍有池名蔡子池。倫始以魚網造紙，縣人今猶多能作紙，蓋倫之遺業也。

考應陽縣晉置，地名辭書謂今之應城縣，待考。至於棗陽縣後漢書志卷二二郡國志作棘陽屬南陽郡，故城在今河南新野縣東北，蔡倫本桂陽郡耒陽縣人或移家應陽棘陽。又或與蔡倫同時的宦者鄧衆封鄆鄉侯，鄆鄉地在棘陽縣。故荊州記有棘陽之誤。明李自珍的本草綱目卷三六亦稱“耒陽蔡倫”，故蔡倫的原籍，除荊州記所言有疑問外，如洪亮吉所言倫為桂陽郡耒陽縣人，可說已成定論。

後漢時的荊州共分南陽、南郡、江夏、零陵、桂陽、武陵、長沙七郡；荊州本古詩所謂‘蠻荆來威’，‘蠢爾蠻荆’之地。南蠻能作樹皮布，且色至鮮淨，列為賦貢。如後漢書南蠻傳所載長沙武陵蠻‘織績木皮，染以草實，好五色衣服’，‘歲令大人輸布一匹，小口二丈，是謂蠻布’。又巴郡南郡蠻‘其民戶歲出幪布八丈二尺’。這種南蠻所產夷布，不僅列入輸賦，且早在漢初，樹皮布已成為商品，即史記貨殖傳的‘榻布皮革千石’。蔡倫生長是鄉，不論其為耒陽、應陽、棘陽皆在蠻荆地內，對於用樹皮造的榻布或幪布，當然有認識。這一點 Laufer 氏亦曾提及，他說：“蔡倫發明造紙，因為他是楚人，這是值得注意的”⁽¹⁾。

第二、夏德 (Hirth) 氏稱蔡倫為政治家，Franke 氏反對其說⁽²⁾，蔡倫雖不能算

(1) Laufer, 1919, p. 558.

(2) Franke, 1937, Vol. 3, p. 219.

政治家，但他的本傳云：“倫有才學，盡心敦慎，數犯嚴顏，匡弼得失”。至少是對政治有修養之人，所以官至中常侍，其秩比二千石，掌侍左右，從入內宮，贊導內衆事，顧問應對給事。官職亦甚重要。

蔡倫在從政之暇，尚從事於科學研究或發明工作，傳云：“每至休沐，輒閉門絕賓，暴體田野”。這說明他不僅閉門作室內的研究，且至田野考察。‘後加位尚方令’，所謂‘加位’以中常侍兼職尚方令，後漢尚方令秩六百石，掌上手工作御刀劍諸好器。倫在永元九年（西元97年）監作秘劍及諸器械，莫不精工堅密為後世法。所以蔡倫至少可說是業餘的科學家或發明家。

第三、蔡倫對於發明造紙最大的貢獻，本傳亦說得很明白，‘倫造意用樹膚麻頭及敝布魚網以為紙’，就是說在造紙所用材料，與一大的改革。早已存在的三種紙的質料，幡紙用織帛，絲紙用絲滓，均是較貴的原料；穀布紙雖料廉而工多，也不能大量生產。倫之造意，仍用造絲紙的技術，即說文所謂‘紙，絮一萆也’。而材料方面說文的‘紙，絲滓也’。代以樹膚麻頭及敝布漁網的樹植纖維。且樹膚麻頭為價廉的原始材料，而敝布漁網更是廢物利用。又原料中首列樹膚，亦即樹皮；敝布或稱故布，或亦包括樹皮布，所以著者認為蔡倫的發明僅在造紙的原料方面，而他的造意乃是直接接受樹皮布文化影響的。

第四、自從蔡倫改用造紙原料之後，使紙質輕而價廉，又易大量生產，倫乃得享盛名。傳載‘元興元年奏上之，帝善其能，自是莫不從焉，故天下咸稱蔡侯紙’。傳文說得很明白蔡倫所發明的是蔡侯紙，當時絲旁的紙字亦改為從巾的帀字。如東漢觀記云：“黃門蔡倫典作尚方作紙，所謂蔡侯帀是也。”李書華先生對於蔡倫發明造紙的貢獻也曾說：

我們素來相信：一種發明往往不是某一個人某一時期作出來的，而是長時期演變進步逐漸成功的。中國人的發明，如指南針、火藥與印刷術，全是如此。造紙的發明，似乎不能完全例外，然却又不完全相同。我們已經說過：在蔡倫以前，或者早就有人以植物質試驗作紙；然完全作成功者，却是蔡倫。後漢書蔡倫傳說得很明白，所謂‘倫乃造意’，當絲毫無疑義的指明是蔡倫所發明的。

至於指南針、火藥、與印刷術，却無法指出某一個人為發明者。

李氏在上文所說的或者早就有人以植物質試驗作紙，如讀了本文的第五節，中國在遠古就有樹皮布文化，用植物纖維造作布或紙兩用之物。所謂‘倫乃造意’，他以造絲紙的原理與技術，改用新舊的植物纖維來造紙，如董巴輿服志曰：

東京有蔡侯紙即倫紙也。用故麻名麻紙，木皮名穀紙，用故魚網作紙名網紙也。

在後漢書蔡倫傳中尚多敝布一種，上文已說過，敝布或即是破舊的樹皮布或稱穀布，故董巴志不列入，亦未可知。可見蔡倫利用的原料，除取之不盡的樹皮外，多數是廢物利用的舊纖維。在此亦可假設，後世的還魂紙造法，即以廢紙造紙，在漢時或已存在。所以蔡倫發明的是價廉、質輕、省工而可大量生產的造紙法，因此‘自是莫不從用焉’。且在漢代一如近世的獎勵發明人，以其姓氏爵位名其發明物，故天下咸稱蔡侯紙 (paper of Marquis Ts'ai)⁽¹⁾

蔡倫對於發明造紙的功績，既如上述。但古今中外研究紙史的學者，尙有懷疑造紙不是蔡倫發明的，如南宋高宗時的毛晃，他的話引見胡三省通鑑注後漢紀和帝十四年⁽²⁾：

楮籍不知所始。後漢蔡倫以魚網木皮為紙。俗以為紙始於蔡倫，非也。案前書外戚傳已有赫蹏矣。

又宋史繩祖的學齋拈畢說：

蔡倫乃後漢時人，而前漢書外戚傳云：趙婕妤，赫蹏書，注謂‘小紙也’（原書應劭注），則紙已見於前漢，恐非始於蔡倫，但倫所造精工於前世，則有之耳。

毛史兩氏之說，實則北宋初年蘇易簡在他所著文房四譜卷四紙譜中早已說過：

漢初已有幡紙代簡。成帝時有赫蹏書詔，應劭曰：‘赫蹏，薄小紙也’。至後漢和帝元興中常侍蔡倫剉故布及魚網樹皮，而作之彌工，如蒙恬以前已有筆之謂也。

至於毛史二人的論證，都是根據成帝時的赫蹏書，赫蹏是樹皮布紙，亦即陸機詩疏所

(1) Carter, 1925, p. 5.

(2) 絛士黨, 1928, p. 10.

說的穀布紙，已詳前說。

此外在蔡倫之前尚有漢武帝時的‘持紙蔽鼻’之紙，明帝時的‘簡紙經傳’之紙，及和帝鄧皇后的‘歲時但貢紙筆’之紙，前面二者可能都是許慎說文（成書年在永元十二年西元100年）上所說的絲紙。至於‘歲時但貢紙筆’之紙，也可能是絲紙或穀紙，但勞榦氏另有異說，他引後漢書與通鑑的材料作一比較，而說後者保存史料的原狀，通鑑中曾經援引：

永元十四年冬，十月辛卯，立貴人鄧氏爲皇后，后辭讓，不得已然後卽位。郡國貢獻，悉令禁絕（原注：漢郡國貢獻，進御之外，別上皇后宮），歲時但貢紙筆而已。

勞氏根據上引史料說：

今按鄧后立時的永元十四年(102年)，正是蔡倫奏上所造永興元年(105年)的前三年，這時鄧后罷免一切供奉，只留了紙筆，也可見鄧后對於紙筆是有特別愛好的，因此蔡倫造紙的成功，很可能和鄧后的好尚有若干關係⁽¹⁾。

照勞氏的考證，則‘歲時但貢紙筆’之紙，當非蔡侯紙，且是郡國貢獻而來。著者假定這可能是穀布紙，因如前引直至唐時，漆州的楮皮布和處州的樹皮布，尙多列爲貢品。

至於“外國若干漢學家，如沙畹 (Chavanne)，夏德 (Hirth)，伯希和 (Pelliot)，卡特 (Carter) 等，均同意在蔡倫以前很長久的時間，已屢經試驗造紙，蔡倫把從前已有方法，加以改良，使合實用。若干製紙專家，亦以此種理論爲然”⁽²⁾。

綜上所述，我們已把古代的四種古紙研究清楚，關於造紙發明的一件公案，至此可試予以公正的批判，但在宣判之前，必須對紙先下一定義，藉以辨明何謂真紙與假紙之別。所謂真紙是用植物的或動物的纖維，先加稻灰汁或石灰汁煮爛，再以手執棒打，或放在臼中杵舂，則成紙漿，用水漂過，倒入紙槽中，則有千萬的細小纖維浮在水中，再用紙簾 (mould) 入水，抄出浮游在水的細小纖維，俟水流出，則有一薄層的

(1) 勞榦，1948，p. 496.

(2) 李書華，1955，p. 4.

縱橫纖維留在簾上，倒出，烘乾即成爲紙⁽¹⁾。再簡言之，凡真紙須用紙簾，天工開物名抄紙簾，亦即許氏說文的‘箔’製成，否則即是假紙或可稱紙的代用品。有此標準，現在可來辨別紙的真假：

(一) 幡紙 原料用絲織的織帛，其法‘枚數重沓’即裱褙而成，直至今日此法尚存，這種是假紙，其價最貴。

(二) 絲紙 原料爲動物纖維的絲繭，法先煮爛成絮，漂後用箔抄成，這是最早的真紙，因料用敗絮廢繭，故價廉於幡紙，在十八世紀的高麗或新疆，尙用此法製紙。

(三) 赫蹏 原料以樹皮的纖維，用撻氈法 (felting) 由樹皮直接打製而成的布或紙兩用之物，材料雖廉而甚費工，價亦較昂，這種紙雖用植物纖維所造，主要用途在做衣，亦用以代紙，如今之印尼的爪哇人和墨西哥的 Otomi 人，尙用這種假紙以作書畫。

(四) 真紙 蔡侯紙即 Hunter 氏稱這種紙爲真紙 (true paper)⁽²⁾，原料是用樹皮麻頭及敝布故魚網，用絲紙造法，先煮後舂，經過漂洗，成爲紙漿，放在紙槽中，用紙簾抄出，烘或晒乾即成爲紙。

上述四種紙，自第四種蔡侯紙發明之後，其他三種仍是繼續存在，以往學者僅從文獻上去研究，未能從民俗與民族學上去求物證，將以上四種紙混爲一談，誤以爲紙非蔡倫發明的，而蔡侯紙改以植物纖維且多廢物利用爲原料而造紙，使紙價廉而省工且得大量製造，所以天下莫不從焉，這是蔡倫對發明造紙術的最大貢獻。

八、後 語

本文的題目爲中國古代的樹皮布文化與造紙術發明，而文之內容除前言後語外，亦可分成兩題：自第二至第四節敘述中國古代確有樹皮布文化的事實，第五至第七節闡明蔡倫發明造紙是受樹皮布文化的影響。以上兩題，實際上多已自成段落，各有結語，故在全文之末，不再作結論，唯尙有若干未盡之意，附述文末，故稱後語。

上文中曾提到樹皮布的起源問題，在此再略伸述：在民族學上，多數學者以爲樹

(1) Hunter, 1947, pp. 77-78.

(2) Hunter, 1947, p. 39.

皮布文化起源於東南亞；德人 Eberhard 氏有創自中南半島的泰族說⁽¹⁾，日人彌津正志又有印度說⁽²⁾，挪威的 Heyerdahl 氏則謂源於美洲⁽³⁾，以上諸氏如知道在中國古代有樹皮布文化存在這許多的事實，且起源甚古而分佈又廣，或將修改他們的學說。著者現暫假定這一環太平洋區的古文化特質可能是起源於華中的長江流域，或在華北的東部沿海地區。

作者主張後漢蔡倫發明造紙術是受了中國早有樹皮布文化的影響，這不是我個人的創見，已有幾位外國學者曾略提示，因民族學者凡研究過樹皮布的原料和製法，又稍諳造紙術者，多能聯想及此，如 Winick 氏說：

樹皮布的製造，可能影響中國造紙術的發明，紙原是用桑皮的植物纖維黏成的。⁽⁴⁾

日人國分直一氏說過：

假如榻布就是 *tapa* 布的話，在漢代紙的發明，或者就是受 *tapa* 布及其製作技術的暗示，*tapa* 布或紙最好的原料是楮。*tapa* 布如 Grubaer 氏所說的可以好到如日本製的薄紙一樣⁽⁵⁾。

Steward 氏亦曾說：

現在中南美洲的製樹皮布，在史前遺址找到石打棒，可推知其起源甚古。墨西哥土人的造紙是源於樹皮布⁽⁶⁾。

以上三氏不過僅有假設，本文做了求證的工作，以證明他們所說的正確，作者不敢掠美，特在此作一聲明。

現在作者擬作進一步的假設：中國古代樹皮布文化不僅影響了造紙術，同時亦可說與中國四大發明中的另一發明印刷術有間接關係。蓋談中國印刷術發明的中外學者多數注意於雕板印書，但紙之主要用途，雖以寫字，然亦可用以繪畫，漢書的赫蹏書

(1) Eberhard, 1942, p. 277.

(2) 彌津正志, 1943, p. 61.

(3) Heyerdahl, 1952, pp. 682-683.

(4) Winick, 1958, p. 525.

(5) 國分直一, 1952, p. 52.

(6) Steward, 1959, p. 313.

即寫字於布紙，漢魏時蠻夷的斑文布，或即由雕板印畫於布紙，為後世印花布的先河。作者的考證古代的雕板印畫必先於印書，其在技術上相同，不過文字與花紋之別而已。現在限於時間與篇幅不能多述，他日擬另草樹皮布印花與印刷術發明一文再試論之。

樹皮布文化之在中國，不僅起源很古，且延續甚久，至現在雲南與寮泰兩國交界邊區的阿卡 (Akha)⁽¹⁾ 和列迷 (Lemet)⁽²⁾ 等族尚製樹皮布，用作被服和墊褥。但自後漢蔡侯紙發明後，樹皮布在吳時陸璣稱之為穀布紙，至晉虞預則稱布紙，自後或簡稱為紙。所以唐宋以降製紙甲、紙衣、紙帷、紙帳等的紙料，作者懷疑皆非真紙而為樹皮布紙；且也，宋元明清四朝所用造楮鈔法，亦或與製作樹皮布的技術有關。上述諸問題，現正在搜集資料，繼續研究，將來如有所獲，再草另文就正於有道，尚望中外的研究紙史的學者、錢幣學家，板本學家及造紙專家不吝指教，或紙幣和古書的收藏家，如能借鑑實物，尤所企盼。

最後應聲明的：本文為作者得國家長期發展科學委員會民國四十九年度國家研究教授講座補助專題研究之一；又今夏作者得亞洲協會資助旅費出席夏威夷第十屆太平洋科學會議時，曾將本文英文摘要再增加一部份材料寫成論文在該會宣讀。作者在此對上述兩機關併致謝忱。

(1) Bernatrik, 1947, Vol. 2, p. 418.

(2) Izikowitz, 1951, p. 61.

BARK CLOTH CULTURE AND THE INVENTION OF PAPER-MAKING IN ANCIENT CHINA

(Abridgement)*

The four great inventions of ancient China, paper-making, printing, gun-powder and compass, especially the former two, have contributed substantially to the world civilization. In every probability, the Chinese invention of the art of paper-making and of printing could be attributed to the influence of the bark cloth culture which had been in existence in China of immemorial times. As we know, the bark cloth or *tapa* was one of the outstanding cultural traits of the circum-Pacific Area, whose dispersion started from Central and South America in the east, with wide distribution in Oceania and Southeast Asia, then spread westward to West Africa through Madagascar. However, it seems very strange that mention has seldom been made by anthropologists of the fact that China had had bark cloth since the very remote age. It is universally known that the art of paper-making was created by Ts'ai Lun in the year 105 A. D. But, as a matter of fact, two kinds of paper had been used for writing previous to the time of Ts'ai Lun: One was the silk paper, made of the refuse silk of animal fibers; the other, made of bark cloth, was called *heh-ti* paper or *nieh-ti* paper. What Ts'ai Lun actually invented was the 'true paper' so called by Hunter (1957:48-52). He made it by means of employing the silk paper manufacturing processes, but using plant fibers as raw material instead of the refuse animal filaments. This article is intended to relate, based on historical records and other literary documents, the bark cloth which had existed continually for many centuries within the territory of China since the remotest times to the most recent past. As early as long before the birth of Christ, bark cloth had been used not only for making clothes and hats, but for writing purposes as well. In the concluding part, this article will also interpret the relationship between Ts'ai Lun's origination of the paper-making art and the *tapa* culture complex during the early stage of the 2nd century, A. D.

TAPA OR KAPA IN ANCIENT CHINA

The Malayo-Polynesian word for bark-cloth, *tapa* or *kapa* (Hunter, 1957: 25) appears in ancient Chinese literary records in the forms of *t'a-pu*, *ta-pu*, *tu-pu*, *na-pu*, or *ka-pu*, or *ku-pu*, etc. In Vol. 129 of his *Shih chi* (The Historical Memoirs)

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written in the 2nd c. B. C., Ssu-ma Ch'ien made this record: "...and one thousand piculs of *t'a-pu* and leather." In fact, both *t'a-pu* and leather were merchandized during that time. Same record is found in Vol. 61 of Pan Ku's *Han shu* (History of the Former Han Dynasty) of the 1st c. A. D., except the *t'a-pu* is changed to *ta-pu*. In Vol. 24 of the *Hou Han shu* (History of the Later Han Dynasty) it is recorded by Fan Yeh (398-445): "Kung-sun Shu had some unlined *tu-pu* garments made for Ma Yüan." Another record is quoted from Vol. 71 of Shen Yüeh's *Sung shu* (History of the Sung Dynasty 420-478 A. D.) which was published in the 6th c. A. D.: "Before Kao Chu (first emperor of the Sung Dynasty, named Liu Yu) came to fame he was living in extreme destitution. He had some *na-pu* clothes." Cognizant of the fact that the clothing substances, as witnessed in above quotations, although represented by four slightly different characters, were one and the same cloth, the ancient scholiasts of China knew very little about its quality and its raw material. Some thought it was made of kapok (*ceiba pentandra*); others believed it was simply coarse cloth; still others were of the opinion that it was *fan* cloth (foreign cloth); but none ever appeared to realize it was bark cloth.

As regards the *ka-pu*, Hsü Shên's explanation in his *Shuo wên chieh tzü* (A work in which the author shows the figurative characters and explains the composition of characters, completed A. D. 100) is as follows: "*Ka*, tributary cloth paid by the Man and Yi (two barbarous tribes) of Nan-chun (in present western Hupei)." Again, it is recorded in Vol. 116 of Fan Yeh's *Hou Han shu*: "Wu-ling (in present North Hunan) barbarian tribes beat, twist and weave bark into cloth and dye it with grass seeds. Being fond of colored dress, they generally cut and make their garments with figurative and elegant designs.... A yearly tribute of one *p'i* (a roll of cloth) of cloth is ordered to be paid by each grown-up and two *chang* (each *chang* equals 10 Chinese feet) by each of those who are under age. Such cloth is called *tsung-pu* (tributary cloth). Each household of the barbarian tribes in Pa-chun (in present East Sze-chuan) and Nan-chun is required to pay a tribute of eight *chang* and two feet of *ka-pu*."

Further, the Chinese had made conspicuous record of *ku-pu* as bark cloth as early as in the 3rd c. A. D. Lu Chi's (261-303) *Shih shu* (A Commentary on the Book of Odes) can be cited for demonstration, in Vol. 1 of which it states: "Nowadays, the people, in the south of the Yangtze River, first join and beat the bark of *ku* (paper mulberry) into cloth, then pound the cloth to make paper, which is called *ku-pu* paper, several *chang* in length, pure white and shining." Such *ku-pu* paper was, in actuality, not the true paper as produced by Ts'ai Lun's processes in that mould was used in making the latter and the final product of which was only two to three feet long, while the former was usually several *chang* in length. This *ku-pu* paper can be compared in length to the Polynesian made *tapa* carpets which were also generally several hundred feet long.

The bark cloth of ancient China, called *ta-pu* and *ku-pu* or *ku-pu*, as described above, was similar to the Austronesian *tapa* and *kapa* not only in name, but also in essence. The word *t'a* 榻 in the term of *t'a-pu* in *Shin-chi* is written as *t'a* 榻 in the block-printed edition of same book kept at the Shi Ku Kuo and the word *t'a* 榻 means 'beat'. In addition, in Naoichi Kokubu's opinion (1943: 48), the bark cloth, commonly called *take* or *tahu*, by the Japanese, was but a sort of cloth produced through felting process. Furthermore, in view of the fact that the word *khou* (Savina, 1939: 310) in use among the Tho aborigines (Tai tribe) inhabiting the Kuangsi province of China and North Vietnam means 'beat', it seems very obvious that *ku-pu* also signifies cloth made by pounding.

BARK-CLOTH GARMENTS, HATS AND SCREEN CURTAINS

In accordance with Chinese historical records and literary documents, the bark cloth in ancient China, like that in other Pacific areas, was also used for making hats, headbands, raiment, screen curtains, etc. The earliest record, which is found in Vol. 1 of Han Ying's *Han shih wai chuan*, dates back to the 3rd c. B. C. and states: "Yuan Hsien lived in the State of Lu; he usually wore *chu* (paper mulberry) hat and carried a chenopod walking stick." Yuan Hsien, a disciple of Confucius, lived in the 6th c. B. C. and during that time bark of *chu* was still used to make hat, called *chu* hat. Quoted for further evidence is an anecdote from *Chou Tan chuan* (Biography of Chou Tang) in Vol. 16 of Pan Ku's *Tung kuan han chi* "During the period of the rule of Chien-wu (25-55 A. D.), being summoned, Tang went to the court for an audience, wearing short unlined cloth garment and *ku-pu* head-dress. The *shang shu* (a minister in old China) who received him attempted to make him change his dress." As previously adverted to, that when Emperor Wu (Liu Yu) of Sung Dynasty was in obscurity and extreme poverty, he had some *na-pu* clothes, is a record regarding the 5th c. A. D. Besides, a statement in T'ao Yin-chü's (456-540) *Min i peih lu* is found as follows "The inhabitants of Wu-ling (in the western part of present Hunan province) make clothes with *ku-pu*, which wears long and looks good." Again adduced for illustration is an account from *Chang Hsiao-hsiu chuan* (Biography of Chang Hsiao-hsiu), Vol. 51 of *Liang shu* (History of the Liang Dynasty) of the 6th c. A. D: "Chang was a native of the district of Wuan of Nan-yang...often wore *ku-pu* head-band-band and rush sandals." Another instance, readily found in Vol. 49, *Nan shih* (History of the Southern Dynasties), is: "Liu Hsu was often dressed in *ku-pu* head-band and *na-pu* clothes."

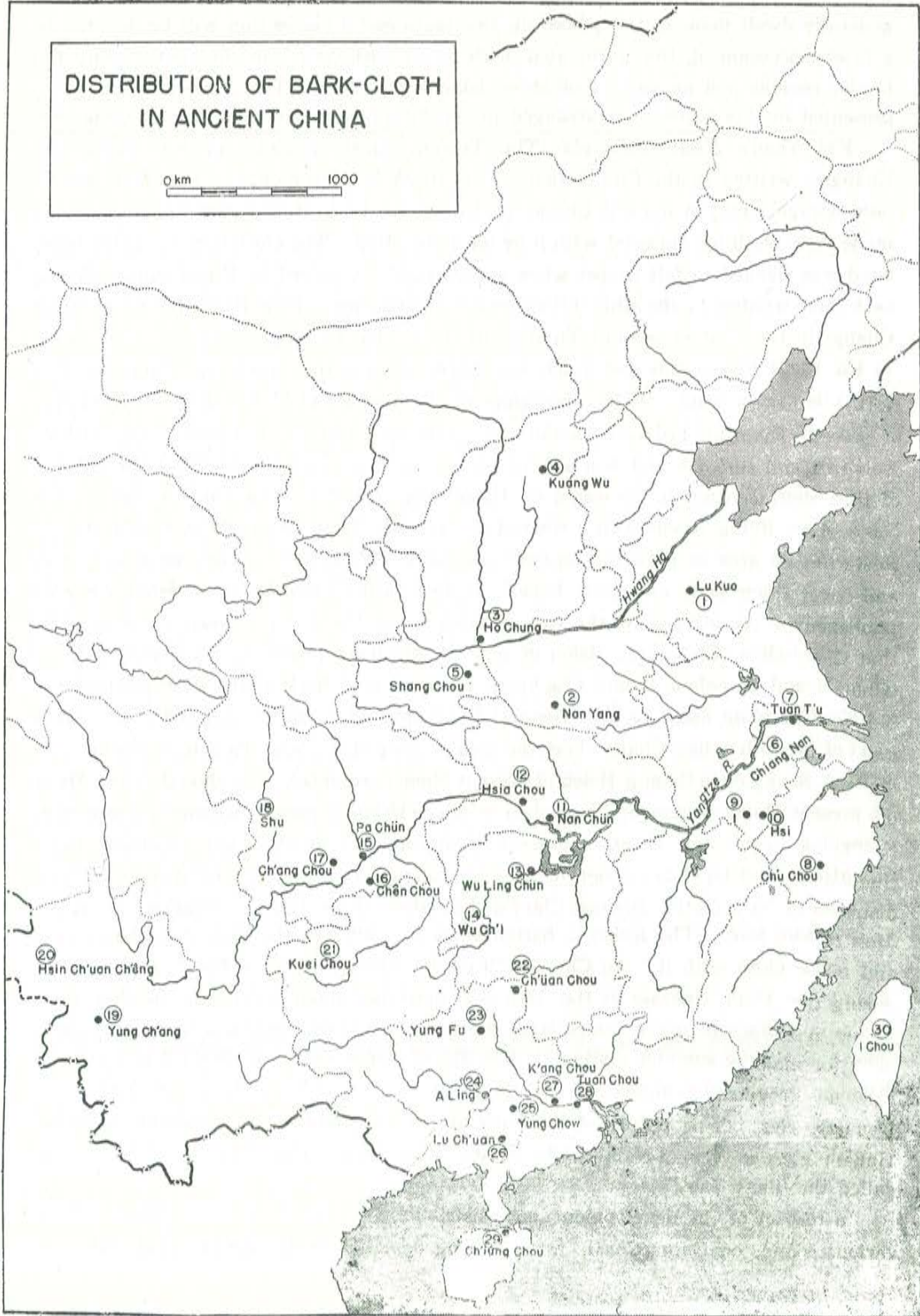
As regards the development of such bark cloth down from the 7th c. A. D. Su Kung of the T'ang Dynasty remarked in his *T'ang pêng ts'ao* (Materia Medica of the T'ang Dynasty): "The people of today who make hats with bark of *chu*..." In the time of the Tang Dynasty, bark cloth was used not only for making dress and kerchieves, but also for making armor, called 'paper armor'. Also worth noticing here is an

episode derived from *Hsü Shang chuan* (Biography of Hsü, Shang) in Vol. 113, History of the T'ang Dynasty, which says: "Shang was appointed to the post of *chieh tu shih* (an official in the T'ang Dynasty, like a magistrate) of Ho-chung. He organized and kept ready an expeditionary army of 1,000 troops, clothed with paper-pleated armor which was too thick to be pierced by strong arrows." As late as the latter part of the 10th c. A. D. during the beginning years of the Sung Dynasty, paper armor and paper clothing were still in production. An instance that can well bear this out is extracted from *Li Tao chuan* (Biography of Li Tao), Vol. 271, History of Sung Dynasty: "The people in the city (Ho-chung) were dressed in yellow paper armor, which appeared very white in the light of bright flame." Again, a record is found in Su I-chien's *Chih pu* (Treatise on Paper) to this effect: "The inhabitants of mountainous areas often made garments with paper.....The paper-clothes' making procedures include: decocting 100 strips of paper first with one tael of walnut and frankincense..... Today, some people of I and Hsi (two districts in the southern part of present Anhwei) make paper sheeting for clothes, which is normally as large as a leaf of the main door." Records of paper armor and paper dress were also made in the Ming Dynasty (1368-1661). A record concerning the methods of making paper armor and paper arm-guard is contained in Vol. 105 of Mao Yüan-i's *Wu pei chih* (Record of Armaments) published in 1621. In addition, in Vol. 36 of Li Tsu-chen's *Pêng ts'ao kang mu* (General Introduction of Materia Medica) the following account is found: "The Southerners peel off the bark and manufacture paper with it by the processes of pelting and boiling; they also weave cloth with it by means of twisting and boiling, but such cloth is not durable and apt to decay."

In addition to clothes, hats, head-dress and armor, the Chinese of old times also made screen curtains and mosquito nets with bark cloth. Su I-chien's "Treatise on Paper" narrates: "Yang Hsu (2nd c. A. D.) used paper for screen when he was the *tai sou* (Prefect) of Nan-yang (In the southwestern part of present Honan province)." Another passage found in Vol. 12 of *Kao pan yü shih* of T'u Lung of the Ming Dynasty expounds: "Paper net is made by fastening the rattan strips and cocoon paper on a wooden frame and tightening them with a string. Loose ends are folded first and then sewed together with thread rather than the use of paste. Coarse weave cloth, instead of paper, is used on the top for the purpose of ventilation." Unquestionably, such paper screen curtains or nets were not made with real paper, but mostly with the bark cloth, for real paper would soon wear out after having been folded hard for stitching.

GEOGRAPHICAL DISTRIBUTION OF BARK CLOTH IN SOUTH CHINA AND OTHER AREAS

The ancient bark cloth of the northern and central parts of China has been



generally dwelt upon in the preceding two sections. This section will be devoted to a brief discussion of the antiquated bark cloth distributed in the South, along the border regions and on various off-shore islands of China. The materials and data presented in this section are arranged in the chronological order of Chinese dynasties.

P'ei Yüan's *Kuang-chou chi* (The Topographical Memoirs of Kuangtung and Kuangsi), written in the Chin Dynasty (265-419 A. D.) chronicles: "The Man and Yi (two savage tribes of ancient China) peeled off the bark of *ku* (paper mulberry) and made rude clothing material with it by hard pounding. The cloth they made for headband was likened to felt carpet when spread out." A record in Kuo I-kung's *Kuang chih* (also written in the Chin Time) relates: "The men of the Black Pei-pu at Yung Chang (in the west of present Yunnan province) wear *ku-pu* garments." Again noted in Ku Wei's *Kuang-chou chi* which was issued during the epoch of T'ang (618-906 A. D.) is this account: "The aborigines of the district of A-lin (East of Kuei-ping of present Kuangsi province) make cloth with the bark of *kou-mang* trees, which feels soft and smooth and is a sort of good cloth." In Vol. 4 of his *Man shu* (History of the Man) written in the reign of Hsian-tung (860-870), Fan Chou states: "The Nude Man, living in caves in a district 300 *li* away from Hsun-chuan cheng (In the westernmost area of present Yun-nan) are called "Wild Man." They have no clothes and cover their body only with bark." In Li Chi-fu's *Yüan ho chun hsien t'u chih* published in the 8th year of the rule of Yüan Ho of the T'ang Dynasty, it is recorded that Chen-chou (Chi-chiang Hsien of present Szechuan province.) paid *chu* cloth as tribute; and Chu-chou (South Che-kiang province) paid bark cloth. Furthermore, Yo Shih's *T'ai ping huan yü chi* (General Geography of China) published in the latter part of the 10th c. lists Chang-chou (the area of Jung-chang and Ta-chu of present Szechuan), Shang-chou (Shang Hsien of present Shensi province), Shia-chou (I-chang Hsien of present Hupei province), Tuan-chou (Kao-yao Hsien of present Kuangtung province), Kangchou (Teh-ching Hsien of present Kuangtung), Jung-chou and Lu-chuan Hsien (Jung Hsien and Lu-chuan Hsien of present Kuangsi province) as the then production districts of bark cloth. Besides, Chu Fu of Southern Sung (12th c.) remarked in his *Chi Man ts'ung hsiao* "The Kelao (a barbarian tribe) gathered the bark of mulberry trees and made cloth with it." In Chapter 59 of the "Book of Marco Polo" accomplished during the Yüan Dynasty of the 13th c. it describes about Kuei-chou in this way: "They manufacture many things with the bark of certain trees and it is particularly good for making summer clothes." Vol. 178 of *Kuan shi tung chih* (Topography of Kuangsi Province) compiled during the reign of Chia-ching (18th c.) of the Ch'ing Dynasty, says: "The people of the tribe of Yao (A tribe which inhabits Kuangsi, Hunan, etc.) at Chuan-chou make armor with bark. The Yao of Yungfu is also called the 'Bark Yao'."

In respect of the development and distribution of the bark cloth culture on the various islands off China Coast, Kuo Yi-kung depicted in his *Kuang chih* that the

Li people (aborigines of Hainan) of Chu and Ai on the Hainan Island during the 6th c. A. D. made cloth with bark. Vol. 169 of *Tai ping huan yu chi* of the latter part of the 10th c. states: "The Raw (uncivilized) *Li* of Chung-chou (Hainan Island) still make dress with bark cloth." A number of literary documents and historical records indicate that Taiwan had bark cloth earlier than Hainan. The *Lin hai shui t'u chih* (Topography of Lin-hai in Vol. 780 of *T'ai ping yü lan*), written by Shen Ying in the 3rd c. A. D. relates: "I-chou, southeast of Lin-hai, 2,000 *li* away from the prefecture can produce streaked cloth with pictorial designs, and sometimes decorated with painting patterns." Then in the beginning of the 7th c., Tu Pao wrote in his *Ta yeh shih i lu* (Vol. 820 of *T'ai ping yü lan*): "In December of the 7th year of the rule of Ta-yeh (611), upon return from his punitive military expedition to Liu-Ch'ou, Chu K'uan brought back over a thousand men and women captives as well as a great deal of Liu-Chen's products and other trophies, most of the articles were different from those of China. Among them, there was bark cloth, which was fine and white, and measured 3 ft 2 in. wide; there was also fine cloth with markings, which was over a foot wide." The bark cloth culture of Taiwan has existed and developed for many centuries. Since the 17th c. records concerning the Taiwan bark cloth culture have been contained in a great number of both Chinese and Western historical writings. Even at the present time, the aged aborigines of Taiwan still know how to make bark cloth (Mary Ling 1960: 314-317).

To sum up, it is quite apparent, based upon the foregoing discussions, that written records of the Chinese bark cloth began to appear as early as the 6th c. B. C. This cultural feature has continued in existence within the territory of China for many centuries and to date it has not yet completely vanished over the southwestern border area of the Yunnan province of Mainland China, Thailand and Burma (Bernatrik, 1947: 418; Izikowitz 1951: 61), as well as on Taiwan and many other islands southeast off the China Coast. In reality, it has a written history of 2,500 years duration, but it has an earlier origin, which, in all likelihood, may date back to the Stone Age. A map (see p. 33.) drawn according to the minimum materials and data, acquired from available documents, in relation with the production and distribution of Chinese bark cloth, geographically, reveals clearly that it started from the Huang Huai Plain of North China, passing through the valleys of Yangtze and Han Rivers of Central China, and spread to the hilly area of South China and the Southwest Plateau, as well as the two large islands off the China Coast. Like the southward spread of all other Chinese cultural traits, this primitive bark cloth culture also began from the north and diffused southward and has finally vanished.

FAN PAPER & SILK PAPER PRIOR TO TS'AI LUN'S PAPER-MAKING METHOD

As it is generally known, Ts'ai Lun created the art of paper-making in the early

years of the 2nd c. (105 A. D.). However, there had been *fan* paper, silk paper and the so-called *heh-ti* petit thin paper in China before his invention. For this reason, many of the scholars of the history of paper, ancient, modern, Chinese and foreign, were and are in doubt as to whether paper was really invented by Ts'ai Lun. The purpose of this article, as manifested by its title, is to confirm that Ts'ai Lun's invention of the paper-making art basically resulted from the direct influence of the bark cloth culture of ancient China. This is the point which has been neglected by most scholars, but it is very important in solving the question which still remains in issue. In order to settle this long-argued problem, I will now offer, in the following paragraphs, a detailed discussion about the three kinds of paper which had been in existence prior to Ts'ai Lun, and then expound how and why Ts'ai Lun was brought to create a new type of paper.

In the old times of China, bamboo slips, wooden tablets, rush sheets and fine-weave silk strips were used as writing substances. The silk strips were sometimes woven so finely and tightly as to be water-proof for the benefit of writing. Nevertheless, such silk strip was a woven material and it was very difficult to write on it, because of its uneven surface. In order to overcome this difficulty, the *fan* paper was created. To illustrate the manufacturing method of the *fan* paper, the following reference is cited from the *Ku ching tsu ku* (Glossary of Ancient and Modern Characters) written by Chang Chi of Ho-chien in the 6th year of Tai-ho under the throne of Emperor Ming of Wei Dynasty (232): "The plain silk of old times could be cut into a piece of any size to accommodate the required text. A number of such pieces, forced together in the manner of fulling, was called *fan* paper." Thus, it can be concluded that the *fan* paper was manufactured by the processes of first weaving silk threads into a fabric, then piling several pieces of such fabric one above the other and finally forcing them together into one piece by the application of some adhesive substance and pressure. The *fan* paper produced in this manner, of course, had a more even and smoother surface than that of the common silk strip, but this was by no means the 'true paper'. The so-called true paper is defined by Dard Hunter (1947: 27) as follows:

To be classed as true paper thin sheets must be made from fibre that has been macerated until each individual filament is a separate unit, the fibres inter-mixed with water, and by the use of a sieve-like screen, the fibres lifted from the water in the form of a thin stratum, the water draining through the small openings of the screen, leaving a sheet of matted fibre upon the screen's surface. This thin layer of intertwined fibre is paper. This was the mannr in which the Chinese eunuch Ts'ai Lun formed the first paper 105 years after the birth of Christ, and in our own time the most ponderous and most efficient paper making machine employs precisely this same principle. The actual fibre formation of paper has undergone no change in almost two thousand years.

In view of Hunter's definition above, it can be determined that such true paper making method had been invented long before the time of Ts'ai Lun (105 A.D.). To substantiate this conclusion, the following note is quoted from the *Shuo wên chieh tzū* completed by Hsü Shên in the closing year of the first century A. D.: *Chih* 紙 (paper), *hsü i chien* 絮一箔; *hsü*, 絮 *pi mien* 敝緜 (refuse silk); *Chien* 箔, *p'ieh hsü tse* 漉絮簞 (mat) *p'ieh* 漉, *yü shui chung chih hsü* 於水中擊絮 (to beat refuse silk in the water.)" Converted into the ordinary language, it means "paper is a sheet of intertwined fibres of refuse silk well beaten in the water and lifted out of the water in the form of a thin layer by the medium of a moulding mat." Another passage as relates the annotation of the word "paper" is cited from Tuan Yu-ts'ai (1735-1805) for further evidence: "Based on records, the processes of paper-making began with the bleaching of certain fluffy raw material, mostly refuse silk in the inceptive years; then, pounding the fibres of the raw material in the water and finally lifting the fibres out of the water, with a moulding mat, in the shape of a thin stratum, e. g. paper. At the present time, (about 1786), paper is made of the bamboo fibres or bark and a finely woven bamboo moulding screen is also used." This passage can also verify that the true paper making method was in employment long before Ts'ai Lun. It seems probable that Hunter was unaware of the historical data as referred to above, when he arrived at the conclusion that the paper-making art was originated by Ts'ai Lun. In truth, refuse silk made of animal fibres was used as raw material for making paper prior to Ts'ai Lun, so such paper was called the silk paper. On this same account, the Chinese word for paper, 紙 (*chih*), even in its earliest form, is composed of the radical "糸" (a root in the Chinese written language, meaning silk). Moreover, a character 紙 (*ti*) is found in Hsü Shen's *Shên wên chieh tzu* which differs slightly from the word 紙 in that it has an additional short line at the bottom of the radical 氏 and it means "refuse silk". However, these two characters have been used promiscuously and alternatively in later days. Judging from these data, it is very evident that the earliest paper was produced with refuse silk (Chavannes, 1905: 10).

Whether there was silk paper in ancient China still remains a question in debate among Chinese and foreign scholars. A few outstanding samples of the various views are cited below for demonstration: Armin Renker (1936: 1-53) stated: "The fibre of silk is not glutinous and it must be mingled with some other material in making paper." Henri Alibaux (1939: 1-30) remarked: "Anybody who is familiar with the paper-making details can hardly understand how could paper be made with silk in the antiquarian ages?" Besides, Edouard Chavannes (1905: 12) assumed that the existence of ancient silk paper was but ephermal. His description is quoted as follows: "ce qui donne à supposer que le papier de soire n'a eu qu'une existence éphémère antérieurement au papier de Ts'ai Louen." Among the Chinese scholars, both Lao Kan (1948: 492) and Ch'en P'an (1954: 264) believe that refuse silk

was used to make paper in the ancient times; while Li Shu-hua (1955: 2-3) is in doubt as to this decision. As a result of my study based upon historical documents, I consider it is beyond any doubt that silk was used to make paper in the old times. As a matter of fact, such silk paper was still in production even after Ts'ai Lun. For example, a record relative to rattan rind and cocoon paper is contained in Vol. 12, *Kao pan yü shih* of Tu Lung (16th c.) of Ming Time. Further, silk paper was still being made in Korea and the Sin-Kiang province of China even in the period of the Ching Dynasty (Laufer, 1919: 264).

BARK CLOTH PAPER KNOWN AS HEH-TI OR NIEH-TI IN ANCIENT CHINA

Vol. 96 of *Chien Han shu* (History of the Former Han Dynasty) contains a record made in the first year of Yuan-yen under the rule of Emperor Cheng (13 years B.C.) which states: "There were some medicine and two copies of *heh-ti* documents in the satchel." Ying Shao (2nd c. A.D.) commented: "*Heh-ti* is a piece of thin and tiny paper." Teng Chan, almost a contemporary of Ying Shao, annotated that *heh-ti* was also named *nieh-ti*. Chavannes (1905: 11), Lao Kan (1948: 495), and Wang Ming (1950: 216) were all of the opinion that such *heh-ti* or *nieh-ti* was just the silk paper; Ch'en Pan (1954: 264) described: "*Heh-ti* was the precursor of refuse-silk-made paper and it may as well be termed as the proto-type of paper." In accordance with his study, Chou Fa-kao (1948: 500) declared that *heh-ti* was pronounced '*kiek-diei*' or '*xak-liei*' in the old times and he further stated: "I still can not give a decisive answer as regards the origin of this term. *Shou wên* explained it as 'bad fluffy substance'; *Han shu chu* (Commentary on the History of the Han Dynasty) interpreted it as 'paper', and Laufer (1919: 557-559) construed it as 'bark of tree' in reference to the Turkish language but he too was not certain about its initial significance." Although Chou did not offer a conclusive answer to the question of *heh-ti*, his comment provides some vital hints. In addition, Yao Ts'ung-wu (1928: 12) remarked: "The name of *heh-ti* is quite strange." With a quick glance at the two characters of *heh-ti* we can be sure that they are not Chinese, but only a phonetic translation of some alien words. Thus, by a thorough scanning of the various languages of the non-Chinese tribes in China, we may most possibly discover its origin. Among the Proto-Austrian Language Group of South China (Benedict, 1942: 600) 'paper' is called '*ndau*' and 'cloth' '*ndei*' (Ling, 1947: 459) in the speech of the Miao Tribe of Hsiang-si (present west Hunan) and cloth is called '*tai*' in the Tongue of the Ke-lao Tribe (Yen Ju-yü's *Miao fang pei lan* Vol. 9). Obviously, *nieh-ti* or *heh-ti* is very similar to the *ndau* (paper) and *ndei* (cloth) of the Miao Language in pronunciation.

For further illustration and comparison, the four words, 'paper', 'cloth', 'bark' and 'beat' of various tribal languages are extracted from Savina's "Guide book of French Indo-Chinese Languages" and listed in the following table:

English	Chinese	Vietnam	Tho	Yao	Miao
Paper	chih	gi'a chi	chia chi	ch'ey chi'ey	nd'ou
Cloth	pu	vai b'o	pai	bui	ndau
Bark	shu-p'i	vocay	nangmay	ghi'angdopo khu	t'oundong
Beat	ta	danh	con hon khou tap tup	bapo cha	ndau

The above table exhibits that the pronunciations of the words paper, cloth and beat of the Indo-Chinese Miao Language are almost identical and whereby it reflects that paper and cloth of the Miao Tribe were most probably made through the process of beating. Besides, paper is called *ti* amid the Larqua Tribe in the North of Indo-China and called *k'at'e* (Bonifacy, 1908: 553) within the Moug Tribe which correspond more closely with *heh-ti*. In consideration of the above facts, it can now be decided that *heh-ti* or *nieh-ti* was a sort of bark cloth or paper, and by no means silk paper. According to the foregoing table, it is also very likely that the word *tapa* or *kapa* of the Pacific area can also be found in the Proto-Austic Language Group. In fact, the *nieh-ti* bark cloth paper had not only existed before Ts'ai Lun, but also had continued to be in being after his invention of paper. As previously quoted, the *ku-pu* paper described by Lu Chi (261-303) in his *Shih shu* (Commentary on the Book of Odes) can serve to verify this point. Cited for further proof is the Memorial to the Throne written by Yu Yu in the 4th c. A. D., in which he petitioned: "At the present, the imperial store-house has in stock over 30,000 pieces of cloth paper, but which are issued to no officials other than those who are responsible for preparing imperial documents. Now, I, your humble servant, would like to request 400 copies of it for the use of writing the Imperial Daily Activities by the Composing Officials." It leaves no doubt that the cloth paper mentioned in the above Memorial was nothing but the *ku-pu* paper. In reality, this type of cloth paper had been in manufacture from the Wei and Chin Dynasties, through the ages of T'ang, Sung and Yüan and down to the period of Ming, and it had also been used for making paper currency, paper armor, paper dress and paper screen curtains, etc. in addition to its popular use for writing purposes.

Bark-cloth paper was used as writing medium in the following circum-Pacific areas in addition to China: Java, Madura and Sumatra of the present Indonesian Archipelago and a kind of coarse bark cloth was used for wrapping material and another kind of fine cloth for writing along the coastal parts of Celebes. As a matter of fact, the industry of bark-cloth paper manufacture in Java and Madura had re-

mained in a prosperous state until the most recent past because of the local people's adherence to the use of such old-fashioned paper for writing in conformity with old customs and traditions (Kennedy: 1934: 229-230). Moreover, the ancient Maya people of Central America also used bark cloth as writing or painting paper. Fig. A of Plate 1 shows the written and painted *hunn* paper almanac, named Dresden Codex. The *hunn* paper was made of bark through beating process in the 9th and 10th centuries. Fig. B shows a Codex Telapalco of the 16th c. later than the Maya, the people of Aztec also pounded bark into paper, called *amatele*. Even about 50 years ago, the Otomi people in the South of Mexico were still making bark-cloth paper by the process of beating as demonstrated by Fig. A, B, and C of Plate 2 (Hunter 1957: 26-29). The paper the Otomi people produced was very small in size. Perhaps, this is worth our special attention, considering its analogy to the ancient Chinese *nieh-ti* thin and tiny paper. There are other districts in the Pacific Area where bark cloth had been in vast production, which, although not made as writing paper, was often decorated by means of painting and printing. Thus, its function did not vary too much from that of paper.

TS'AI LUN AND THE INVENTION OF PAPER

Of the several writing substances used in old China, the bamboo slips and wooden tablets were heavy and inconvenient to carry; the silk strips as well as the silk paper were both expensive; the rush sheets, though cheap, were very fragile; and the production of *nieh-ti* needed too much labor. In view of the deficiencies of these writing media, Ts'ai Lun thought out the measure of making paper by employing the old refuse-silk paper manufacturing process, but using the inexpensive plant fibres as raw material, which may as well be described as utilization of waste substance. Inasmuch as the cost of the raw material was low and only minimum labor was required, such paper soon began to be produced on a large scale and before long it was widely distributed. The following passage is extracted for information from the "Biography of Ts'ai Lun" which was compiled by Fan Yeh (398-445) in the 5th c. A. D. and appeared in the official history of the Later Han Dynasty (Vol. 78):

"Ts'ai Lun, alias Ching-chung, was born in Kuei-yang. During the period Chien-ch'u (A. D. 76-84), Ts'ai Lun was a eunuch. The Emperor Ho, on coming to the throne (A. D. 89) and learning that Ts'ai Lun was a man full of talent and zeal, appointed him a *chung chang shih* (Private Counsellor). In this position, he did not hesitate to bestow either praise or blame upon his Majesty. During each rest-bathing period (holiday), he was deeply absorbed in studying, refusing to receive callers. Sometimes, he would go for extensive and painstaking field surveys and/or explorations. In the 9th year of the period Yung-yuan (A. D. 97) Ts'ai Lun became the *shang fang ling* (Inspector of Works). Under his instruction

workmen made, always with the best materials, swords and arrows of various sorts, which were models to later generations.

In ancient times writing was generally done on bamboo, or on pieces of silk, which were then called *chih*. But silk being expensive and bamboo heavy, these two materials were not convenient. Then Ts'ai Lun thought of using tree bark, hemp, rags, and fish nets. In the first year of Yüan-hsien Period (A. D. 105) he made a report to the emperor on the process of paper-making, and received high praise for his ability. From this time paper has been in use everywhere and is called the 'Paper of Marquis Ts'ai' (Carter, revised by Goodrich 1955: 5, for continuation of the Biography of Ts'ai Lun, see translation in Blanchet, 1900: 13-14 or Hunter, 1947: 5-52)

Judging from the above passage of Ts'ai Lun's biography, it is very clear that the bark-cloth culture had great bearing on Ts'ai Lun's invention of paper.

(1) Ts'ai Lun's native place was in the district of Kuei-yang which presently belongs to the Department of Heng-chou, Province of Hunan. In ancient time, Hunan was an important part of the State of Ch'u, and it had been famous for the production of bark cloth from the remotest time down to the Ming Period. For illustration, Laufer's (1919: 558) account is cited: "According to Li Tsu-ch'en, this word *kou* (paper mulberry) originated from the language of Ch'u, in which it had the significance of 'milk' and, as the bark of this tree contained a milk-like sap, this word was transferred to the tree. It is noteworthy in this connection that Ts'ai Lun, the inventor of paper in A. D. 105, was a native of Ch'u." Whether Li Tsu-ch'en's interpretation of *ku* is correct remains to be proved.

The language of Ch'u was close to the Tai tongue. The Tho language as referred to in the above table was, in essence, one of the Tai dialects, of which both *khou* and *tap* denote 'beat' and accordingly, *khou-pu* or *ta-pu* signify the cloth or paper manufactured by a beating process. Based on my study, I agree entirely to Laufer's supposition that Ts'ai Lun's invention of paper-making and *ku* paper or *ku-pu* were closely related.

(2) Ts'ai Lun was not only an inventor, but also a man of great learning. His attitude of studying is well exemplified by that passage in his biography which says: "During each rest-bathing period, he was deeply absorbed in studying, refusing to receive callers. Sometimes, he would go for extensive and painstaking field surveys and/or explorations." This means that he carried on assiduously his pursuit of knowledge scholastically on the one hand, and conducted exhaustive field investigations and explorations on the other. Undoubtedly, he had made on-the-spot investigations in regard to the manufacture of bark cloth.

(3) Under the circumstances of his time, Ts'ai Lun used, in main, the cheap bark of certain trees for making paper. He also made use of the waste articles,

such as hemp waste, old rags and fishing nets as raw materials for paper manufacture. The old rags he utilized might possibly be some sort of bark cloth.

(4) The word *chih* 紙 (paper) was composed of a 'silk root in the ancient times. After the invention of the paper of Marquis Ts'ai, the same word *chih* 帛 written with the cloth radical in substitution for that of silk was frequently observed. However, it is the one with the silk radical that has survived and is in common use today (Carter, 1957: 10).

In short, it may be concluded that all Ts'ai Lun had contributed to the art of paper-making was but the introduction of the cheap plant fibres such as bark of trees, hemp waste, old rags and fishing nets, for raw materials, while the manufacturing skill he employed was still the same old making process of silk paper. Because of the low price of these raw materials, paper was thus produced in great quantity and widely adopted for use. As a result, Ts'ai Lun became very popular and famous.

It is my opinion that Ts'ai Lun's invention of the paper-making art was influenced by the early bark cloth culture. This is a conclusion I have arrived at from my own research; however, it is not a new discovery, since several fellow colleagues have touched, more or less, on this point before. In fact, every ethnologist who has made enough study of the bark cloth and its raw material as well as its making procedures, coupled with enough knowledge of the paper-making art, can come upon this same theory. For example, Winick (1959: 525) said: "*Tapa* cloth-making may have influenced the Chinese invention of paper, which originally consisted of mulberry bast stiffened with plant fibers." Again, Naoichi Kokubu (1952: 52) stated: "The invention of paper in the Han Dynasty was probably promoted by *tapa* cloth and its manufacturing method. The best raw material for the *ta pa* cloth or paper was *chu*. In accordance with Gruber, the good *tapa* cloth was sometimes as fine as the thin paper made in Japan." Further, a statement made by Steward (1959: 313) concerning this matter is quoted as follows: "The manufacture of bark cloth is quite old, since what are clearly bark beaters have been found in archaeological sites in South and Central America. It is probable that such cloth was the ancestor of the paper made by the aboriginal Mexicans."

The above cited three scholars only brought forward the hypothesis, whereas this article has presented the result of the arduous research and verification efforts on my part in proving its correctness. However, I must make it clear that I dare not claim any distinction which belongs to somebody else for his achievement.

Based upon the findings of my research, I now advance an additional theory, i.e. the bark cloth culture of ancient China had not only influenced the paper-making skill, but it had also had some indirect effect on the art of printing, another of the four great inventions of China. Actually, the majority of both Chinese and foreign students of the history of Chinese printing have placed too much emphasis on

block-printing, whereas paper was primarily used for writing, and also for painting. The *heh-ti* document described in the History of the Han Dynasty was nothing but some writing on a sort of cloth paper, while the streaked cloth of Man and I tribes in the Han Period might, in every possibility, be block-printed cloth or paper, which had set a pattern for the printed cloth of later ages. According to my research and examination, the ancient wood-block printing of China had appeared to the world earlier than the printing of books, essentially, the former was concerned with the printing of figures or designs, while the latter dealt with the printing of words, but there was no difference between them relative to their printing techniques. In addition to figures or designs which were printed on the ancient decorated bark cloth, sometimes painting was also executed on it. For this purpose, the writing brush, ink and paint had to be used. Hence, the Chinese writing brush and ink was also brought about by the influence of *tapa* culture. As a matter of fact, a number of bark-cloth producing areas of old China had become renowned in later ages for their production of paper, printing, writing brush and ink. Such conglomeration of cultural features in one area formed a phenomenon which should be considered and interpreted as no other than another aspect of the same bark cloth culture complex. Unfortunately, a detailed discussion of it can not be presented until some other time, due to the limited length of the present article.

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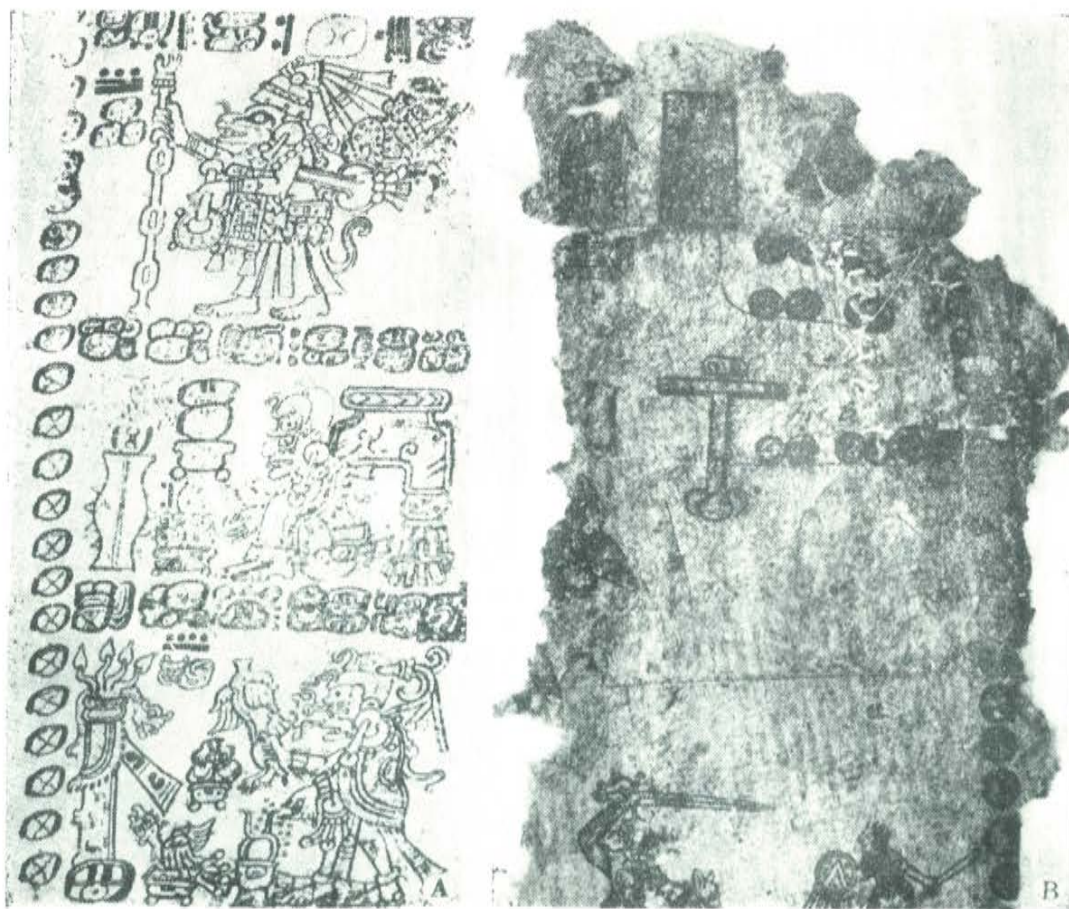
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- A Lin 阿林
 chang 丈
 Chang Chi 張揖
 Chang-chou 昌州
 Chang Hsiao-hsiu chuan 張孝秀傳
 Chen-chou 溱州
 Ch'ên P'an 陳槃
 Chi-chiang Hsien 蕪江縣
 Chi Ku Ko 淡古關
 Chi man ts'ung hsiao 溪蠻叢笑
 Chia ch'ing 嘉慶
 chieh tu shih 節度使
 Chien-ch'u 建初
 Chien han shu 前漢書
 Chien, p'ieh hsü tse yeh 筴, 漵祭贊也
 Chien wu 建武
 chih 紙
 chih(paper), hsü i chi 紙, 緜一活
 Chih pu 紙譜
 Chin 晉
 Ch'üung-chou 瓊州
 Chou Fa-kao 周法高
 Chou Tang chuan 周黨傳
 chu 楮
 Chu Ai 珠崖
 Ch'u-chou 處州
 Chu K'uan 朱寬
 Ch'üan-chou 全州
 chung chang shih 中常侍
 Emperor Ch'êng 成帝
 Emperor Ho 和帝
 fan 幡
 Fan Ch'o 樊綽
 Fan Yeh 范曄
 Han shu 漢書
 Han shih wai chuan 韓詩外傳
 Han shu chu 漢書注
 Han Ying 韓嬰
 heh-ti 赫蹏
 Ho-chung 河中
 Ho-chien 河間
 Hou han shu 後漢書
 Hsi 歙
 Hsiang si 湘西
 Hsien T'ung 咸通
 hsi pi mien 榘敝縣
 Hsü Shang chuan 徐商傳
 Hsu Shen 許慎
 Huang Huai 黃淮
 I 毘
 I-chang Hsien 宜昌縣
 I-chou 夷州
 ka-pu or chia-pu 幪布
 Kao Chu 高祖
 Kao pan yü shih 考槃餘事
 Kao-yao Hsien 高要縣
 Kelao 狢狢
 Kokubu, N. 國分直一
 kou-mong 勾芒
 ku 穀
 Ku chin tzu ku 古今字詁
 ku-pu 穀布
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 Ma Yüan 馬援
 Man 蠻
 Man shu 蠻書
 Mao Yüan-i 茅元儀
 Miao fang pei lan 苗防備覽
 Ming i pieh lu 名醫別錄
 Ming-ti 明帝
 na pu 納布
 Nan Chun 南郡
 Nan shih 南史
 Nan Yang 南陽
 nieh-ti 纏屨
 Pa-chun 巴郡
 Pan Ku 班固
 Paper of Marquis Ts'ai 蔡侯紙
 Pei Pu 裴潑
 P'ei Yüan 裴淵
 Pen tsao kang mu 本草綱目
 p'i 匹或疋
 p'ieh, yü shui chung chi hsü 漉於水中擊絮
 pu 布
 Shan-chou 陝州
 Shang-chou 商州
 shang fang ling 尙方令
 Shang Hsien 商縣
 Shang shu 尙書
 Shen Ying 沈瑩
 Shen Yüeh 沈約
 Shih chi 史記
 Shih shu 詩疏
 shu-p'i 樹皮
 Shuo wen chiai tzu 說文解字
 Ssu-ma Chien 司馬遷
 Su I-chien 蘇易簡
 Su Kung 蘇恭
 Sung shu 宋書
 ta 打
 t'a 搨
 t'a 榻
 Ta-chu 大竹
 ta-pu 蒼布
 t'a-pu 榻布
 Ta yeh shih i lu 大業拾遺錄
 T'ai-ho 太和
 T'ai p'ing huan yü chi 太平環宇記
 T'ai P'ing yü lan 太平御覽
 T'ai shou 太守
 T'ang pen tsao 唐本草
 Tao Yin-chu 陶隱居
 Te-ch'ing Hsien 德慶縣
 Teng Chan 鄧展
 tsung pu 贛布
 T'u Lung 屠隆
 Tu Pao 杜寶
 tu-pu 都布
 Tuan-chou 端州
 Tuan Yu-ts'ai 段玉裁
 Tung kuan han chi 東觀漢記
 Wan 宛
 Wang Ming 王明
 Wu Ling 武陵
 Wu pei chih 武備志
 Yang Hsü 羊續
 Yao Ts'ung-wu 姚從吾
 Yao 獠
 Yen Ju-yu 嚴如煜
 Yi 夷
 Ying Shao 應劭
 Yu Yu 虞預
 Yüan ho chun hsien tu chih 元和郡縣圖志
 Yüan Hsien 原憲
 Yüan-yen 元延
 Yung Chang 永昌
 Yung-chang 榮昌
 Yung-chou 容州
 Yung-fu 永福

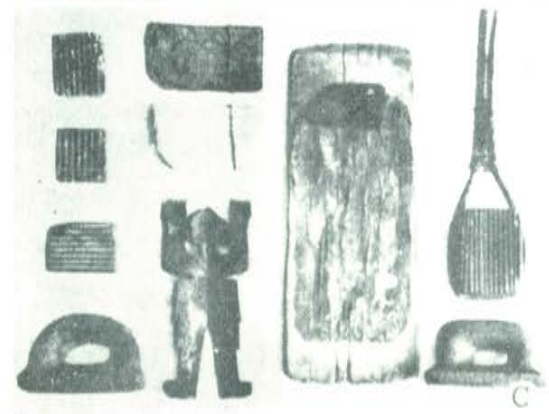


A. 中美 Maya 人在第九至第十世紀所造的樹皮布紙。

A "page" from the Dresden Codex. This polychromic book, called analteh by the Maya, is eight inches high, twelve and a half feet long, and is folded screenwise to form distinct pages. It is written on huun paper made from the inner bark of the Ficus. The book was made between 900 and 1000 A. D. (After Hunter).

B. 中美墨西哥的 Aztec 人，在十六世紀時所用的樹皮布紙。

A section of the Codex Telapalco, Valley of Mexico, from about 1530. The original paper roll measures 5½ by 61 inches (After Hunter).



A. 墨西哥的 Otomi 印第安人放樹皮在一木板上，用石錘打製。

An Otomi Indian woman, San Pablito, Mexico, placing bark fibre on a board ready for beating with a stone such as is shown in Figure C (After Hunter).

C. Otomi 人打製樹皮布紙所用的各種工具，及用紙做的人型。

The tools used by the Otomi Indians, Mexico, in making their paper. The grooved stones are of serpentine marble, and those with rounded handles are gabbro. The cut amatl-paper images (muñeco) are used in the practice of sorcery (After Hunter).

B. Otomi 人將打成的紙，在板上乾晒；又掛在繩上的爲樹皮。

Beating bark fibres into a sheet of paper. Sheets of paper are drying upon boards at the side of the worker; the inner bark of the *Ficus involuta* hangs on the line (After Hunter).

D. 日本人至今尚有用手打樹皮造紙。

Beating bark by the ancient hand process. This method of maceration is fast dying in Japan and may be seen in only a few localities. Shigarami village, Japan (After Hunter).

二 宋元以後造楮鈔法與樹皮布紙的關係

在蔡倫發明造紙術之前，古代早有樹皮布紙的存在；但有蔡侯紙或名真紙之後，樹皮紙仍繼續製造，如陸璣詩疏的穀布紙。真紙雖價廉而質輕薄，然紙質柔弱而易破碎，並且不能受溼。反不如穀布紙的粗厚而能耐溼經用。因此中國自唐宋以來，通行的紙幣又名楮幣或楮鈔，或是直接以樹皮布紙而造鈔幣；至少是採用古代打製樹皮布紙的方法以造鈔紙。因為宋代楮鈔以三年為一界，元明七年為一界；即一張鈔紙要流通三年或七年以舊換新，恐非質地軟弱而易破碎的真紙所能勝任。楮鈔之制明王圻稗史類編有云：

軒轅臣伯陵始以布帛為楮幣，漢武帝改制皮幣。唐憲宗始置關子，時呼飛錢，宋孝宗改制會子，元世祖始造交鈔。

羅振玉四朝鈔幣圖錄云：

周官載師：宅不毛者有里布，先鄭司農注里布者，布參印書，廣二寸，長二尺以為幣，貿易物。孫詒讓曰：此說里布為即布帛之布，布參印書，蓋謂書布之上而加璽印，此殆為後世楮幣之所自昉。然司農所釋僅據舊聞，其制用之方，不可得而詳焉。楮幣之作，實始於唐之飛錢，宋之交子，民間為之，則省轉輸之勞，國家行之，則啓無窮之害。⁽¹⁾

上錄黃帝時以布帛為幣，周官的里布，均不得稱楮幣。漢武帝改制皮幣，馬端臨文獻通考卷八：

元狩四年造皮幣，今以白鹿皮方尺，緣以續為皮幣，直四十萬，王侯宗室朝覲享，必以皮幣薦璧，然後得行。

則漢初以鹿皮為幣。本文所研究的楮幣，是以楮樹或其他樹皮造作的鈔幣，即造鈔的

(1) 羅振玉，1914，p. 1.

質料及技術，與古代樹皮布紙文化有關問題，至於鈔幣的‘制用之方’則不在本文討論範圍之內。所謂楮幣之作，實始於唐之關子或名飛錢⁽¹⁾，但有關唐代造鈔的文獻，很少可靠材料，以資討論。至北宋在四川通行的交子，其造鈔之法，見明曹學佺蜀中廣記錄元費著著錢幣譜曰：

蜀民以錢重難於轉輸，始製楮爲券，表裏印記隱密，題號朱墨間錯，私自參驗，書緡錢之數，以便貿易謂之交子。……熙寧元年(1068)，監官戴蒙又請置抄紙院，以革僞造之弊。引有兩界，與官自抄紙，皆自蒙始。大觀元年(1107)五月改交子務爲錢引務，所鑄印凡六：曰勅字，曰大料例，曰年限，曰背印，皆墨；曰青面以藍；曰紅團以朱。六印皆飾以花紋，紅團、背印則以故事。監官一員，元豐元年(1078)增一員，掌典十人，貼書六十九人，印匠八十一人，雕匠六人，鑄匠六人，雜役一十二人，廩給各有差。所用之紙，初自置場，以交子務官兼領，後慮其有弊，以他官董其事。隆興元年(1163)始特置官一員蒞之，移寓城西淨衆寺。紹熙五年(1194)始創抄紙場于寺之旁，迄官治其中，抄匠六十一人，雜役三十人。凡引一界滿，納舊易新。

上述雖爲交子務或錢引務與抄紙院或抄紙場之組織，然所謂‘官自抄紙’，‘抄匠六十一人’，‘製楮爲券’，這種紙決非普通之紙，可惜其造法未詳。

又南宋後在臨安府置會子務，吳自牧夢梁錄卷九及咸淳臨安志卷九云：

會子庫在本務，紹興三十一年(1161)詔臨安府置會子務，隸都茶場，悉視川錢法行之，用戶部侍郎兼知臨安府錢端禮之請也。中經省併，以權務門官兼領。紹定三年(1230)後，五年因火毀重建，以都司官提領，工匠凡二百四人，日印則取紙於左帑而以會歸之。

造會紙局在赤山之湖濱，先是造紙於徽州，既又於成都。乾道四年(1168)三月以蜀遠紙弗給，詔卽臨安府置局，從提領官權兵部侍郎陳彌作之請也。始局在九曲池，後徙今處。又有安溪局，咸淳二年(1266)九月併歸焉，亦領以都司，工徒無定額，今在者一千二百人。

(1) Yang, 1952, p. 51.

由上僅知南宋會子務的印工爲二百四人，然造紙的工人有一千二百人。至於造會子的故事，散見於其他載籍者如晦庵先生朱文公文集卷十九：

(唐)仲友稱說，我要做些會子，(蔣)輝便言，向後敗獲不好看。仲友言你莫管我，你若不依，我說便送你入獄囚殺，你是配軍不妨。輝怕台嚴依從。次日見金婆婆送飯入來，輝便問金婆婆如何得紙來。本人言你莫管。仲友自交我兒金大去婺州鄉下撩使箆頭封來。

所謂撩紙又見周密癸辛雜識續集下撩紙條：

凡撩紙必用黃蜀葵梗葉新擣，方可以撩，無則占粘不可以揭。如無黃葵，則用楊桃藤，槿葉，野蒲荷皆可，但取其不粘也。

楊聯陞先生謂撩紙即天工開物的抄紙⁽¹⁾。但建炎以來朝野雜記乙集卷十七有云：

關于諸軍，多爲諸將私役者，其間軍士有因食貧而爲手技者；則又有拘而使之者，否則計日而責其工直，以故士日益貧。宋子欽知金州（今陝西安康縣）過歲杪，有軍士夜揭民居之楮鏹者（蜀人過歲除，則以紙鏹徧貼於門扉之上，謂之門戶錢）。爲廂巡所縛，子欽怪而問之，曰：某粗能抄紙，本將日責抄紙若干張，未嘗給其直也。計無所從出，故至是耳。子欽憐而釋之。

上述的楮鏹即是紙幣，抄紙或是以楮皮造紙之術。

又南宋在湖廣等地所造的會子稱‘湖會’，文獻通考卷九有云：

湖南漕司根刷舉人落卷，及已毀抹茶引故紙應副，抄造會子。

以故紙再造的紙稱還魂紙。所以泉布通志卷八引袁氏錢楮考云：

南宋高宗以來，東南有會子之設，而直以紙爲錢矣。

可見宋代的楮幣先用四川所造之紙，後在徽州杭州所造尙是特種鈔紙，至湖廣造的湖會紙簡直是還魂紙，所以楊聯陞和曾我部靜雄兩氏認爲宋代，用地方紙所造之鈔，其品質已不如四川之交子⁽²⁾。至於宋代的交子與會子，是否有實物保存至今，中外學者尙多爭論，泉布通志所載的唐宋寶鈔，Pelliot，⁽³⁾ Carter，⁽⁴⁾ 楊聯陞 ⁽⁵⁾ 諸氏多懷疑其真

(1) Yang, 1953, p. 569.

(2) Yang, 1953, p. 371; Sogabe, 1951, pp. 72-76.

(3) Pelliot, 1951, pp. 122-23.

(4) Carter, 1955, p. 115.

(5) Yang, 1952, p. 54.

實性。Bowker 反對 Pelliot 之說，謂波士頓美術博物館藏有唐宋西遼等鈔幣。楊聯陞又駁斥 Bowker 氏說，泉布通志所載唐宋紙幣上有「寶鈔」「內閣」「閣部」等字樣，時代是錯誤的⁽¹⁾。但與宋同時的西遼西夏及金都有真的紙幣或鈔版傳世。據 Bowker 說，Davis 書中的西遼紙幣，見之於泉布通志中(圖版壹：A)⁽²⁾。西夏鈔幣作者親見李東園先生珍藏一紙，與泉布通志卷六頁六八所載者相同(圖版壹：B)，紙色青灰而紙質較厚，據李先生推測為蠶絲造的⁽³⁾。至於金鈔，Bowker 發表一貞祐五貫鈔幣，現為一香港收藏家所有⁽⁴⁾。此紙或同於四朝鈔幣圖錄所收五貫貞祐寶券銅版(圖版壹：C)。又金代鈔幣銅版傳世者有貞祐二年(1214)壹佰貫鈔版(圖版壹：D)⁽⁵⁾。

元代的鈔式現在的銅版有元至元通行寶鈔二貫鈔版如(圖版貳：A)⁽⁶⁾所示。至鈔幣之傳世者，有至元叁拾文(圖版貳：B)⁽⁷⁾壹百文寶鈔兩種。又李東園氏藏有至正庫足兌伍拾兩大鈔，據他說紙質係唐川紙的⁽⁸⁾。至於造鈔的質料，馬哥波羅遊記第二十四章章名：

大汗以樹皮，做成有點像紙之物；以之作幣，通行全國。

波羅又在該章中說：

用某種樹皮，事實上是桑樹皮，葉可飼蠶，Combaluc 地方所產很多，幾到處可見。取出樹之外皮與木層之間的細緻的內皮，做成像紙張之物，再切成不同大小的鈔料。⁽⁹⁾

Bretschneider 氏則說：

波羅謂‘大汗用桑樹皮，做成有點像紙之物作幣’。他此語似乎是錯誤的。中國造紙不是用桑樹而是用楮樹 (*Broussonetia papyrifera*)，後者屬於桑科 (*Mo-*

(1) Yang, 1953, p. 373.

(2) Bowker, 1943, p. 270.

(3) 良爾, 1963, p. 3.

(4) Bowker, 1950, pp. 313-315.

(5) Mullie, 1937, pp. 150-157.

(6) 羅振玉, 1914, pl. 5.

(7) 羅振玉, 1914, pl. 6.

(8) 良爾, 1963, p. 7.

(9) Yule, 1926, Vol. I, p. 423.

raceae) 相同的纖維，在中國若干地方用之作布。馬可波羅提及的或者同一種樹，曾說：‘在貴州省，他們用某種樹皮作布，以作很細的夏衣’⁽¹⁾。

Laufer 氏引用 Julien⁽²⁾ 和 Ahmed Sibab Eddin⁽³⁾ 等著述曾指出 Bretschneider 說的中國造紙用楮不用桑是錯誤的。楮與桑兼用，且後者又多用於造鈔紙。元代鈔質，元史食貨志，陶氏輟耕錄及四朝鈔幣圖錄均未提及，幸有波羅所記，可據以補中國史文之略。

迨明之鈔質，明史卷八一食貨志：

洪武七年設寶鈔提舉司，明年詔中書省造大明寶鈔民間通行，以桑穰爲料，制方高一尺，廣六寸，質青色，外花欄，橫題其額曰：大明通行寶鈔。

又明王圻稗史類編：

今之鈔蓋始於金，而元承其制，本朝沿襲之。開洪熙宣德間，猶有百文鈔，今但有貫文者，每貫值銀三釐錢二文，非復國初之直矣。今鈔之制，以桑楮皮爲之。豎長一官尺，橫八寸，額上橫作楷書云：大明通行寶鈔。

照上鈔明仍元制，鈔幣由桑楮樹皮打製而成，但張爾岐嵩庵閒話（泉布通志卷八引）云：

世傳明鈔，用太學生課本做紙爲之，其青黎色，是紙墨雜合行所致。

又泉布通志卷八引釋大開續集稽古略：

洪武九年，上初造鈔不就，夢神入告曰：非用士子心肝不可，上憂之，語馬太后，后曰：此甚易耳，以國學文課置鈔，鈔就矣，上曰何也。答曰：士子嘔心，做出文字，豈非此耶，上從之，鈔乃就。

此一傳說，雖不可信，然可見明初鈔幣是造一種特殊之紙，孟逸岡在泉布通志同卷有云：

至於一貫之鈔紙，其體厚，以文課雜合，其色黎，卽今之所謂還魂紙也。

明之一貫寶鈔如圖版貳：C 所示羅振玉氏所藏，四朝鈔幣圖錄云：

右明洪武一貫鈔，盛氏大土泉史載之，鮑子年（康）胡石查（義贊）均有之。

(1) Laufer, 1919, p. 560.

(2) Julien, 1869, pp. 145, 149.

(3) Schefer, 1895, p. 17.

予此本乃光緒庚子都城之亂，市井無賴，得之佛像腹中者。

可見此一貫鈔，今尚存者不少，Cordier 氏所註馬可波羅遊記亦附一張，但鈔面有兩印璽⁽¹⁾。

據明史食貨志載，所造大明寶鈔，其等凡六，自一貫，五百而遞減至壹百文。如照孟逸岡之說，一貫之鈔紙，其體厚；其文課雜合，其色黎。則其下小鈔，可能是另一種造法，或即以桑楮樹皮打製而成。

清代至道光季年始創行鈔之說，至咸豐初年，因洪楊之亂，軍需浩繁，不得已而採用之。鈔分錢銀兩種，前者又名寶鈔（圖版貳：D），後者又稱官票或銀票。至於鈔制與鈔質，四朝鈔幣圖錄有云：

寶鈔用厚白紙爲之（俗呼雙抄紙），花紋字畫，悉用藍色刷印。錢數亦刻成者，依千字文編號，某字及某號，用墨戳鈐補，某年字則用藍色木戳鈐之。年下加黑色小長印，則鈔局編號時私記也。予所見二千，一千五百，一千及五百四種。官票用高麗紙爲之。花紋字畫，亦藍色，銀數用大字墨戳，亦用千字文編號。某字上用黑色木戳，第幾號及年月日則用墨筆填寫，下角有黑色押字木戳。頒外省者騎縫處加鈐戶部紫水印，外省解部者加督撫關防，布政司使及府州縣印。右側騎縫處有驗訖藍戳，上有主政某（用姓不用名）朱戳，予所見有一兩，三兩，五兩，十兩四種。

直至清季造鈔，寶鈔用厚白的雙抄紙，官銀票須用高麗紙，可見造鈔不用普通書寫之紙，多須採用性韌而厚的質料之紙。

以上研究宋元明清四代的楮幣，文獻所載多論鈔式及其制用，對於本文注意的楮幣的質料和造鈔的技術，所記材料甚少。宋之四川交子，其質料與造法不詳，在東南的會子，或用真紙（即蔡倫紙）造法，至於湖會甚至用還魂紙法。故宋之楮鈔，經不起使用，以三年爲一界，以舊易新。與宋同時之金人所造的交鈔，鈔質與造法雖亦不明，然其初造規定，‘俟七年納換別給’，後並‘不限年月行用，如字文故暗，鈔紙擦摩，許於所屬庫司，納舊換新’⁽²⁾。則金之交鈔必較宋之會子經用。元代之鈔制，史稱

(1) Yule, 1926, p. 426.

(2) 羅振玉, 1914, p. 2.

仍金而來，其鈔質幸有馬可波羅記載明白，為樹皮布紙所造。明鈔有大小兩種：小鈔或為樹皮布紙造；大鈔或用真紙造法。清之錢票料用雙抄紙，銀票用高麗紙。

據本文上述古代紙幣之現存者，有遼夏金元明清六種；如果前面較古的四種多為真品，則造紙專家不難分析其質料與造法。根據史籍記載，古來所謂楮幣，多用楮或桑樹皮為原料，以木棒手打樹皮造紙，因手工打製的纖維長而強，且有黏韌性，以之造鈔，牢固而經用。打製又可分為二法：一由樹皮直接打成為紙；又一以樹皮先打成紙漿，再造成紙；這兩種造紙法在日本韓國，至今猶有存者⁽¹⁾。前者由樹皮直接打成的紙，為今之樹皮布，即陸機所謂穀布紙，亦即前漢書的赫蹏書，在蔡倫發明造紙術前的紙。

(1) Hunter, 1947, p. 148.

RELATIONSHIP BETWEEN THE ART OF CHU CHAO MANUFACTURE FROM SUNG AND YUAN DYNASTIES ON AND THE MANKING OF BARK-CLOTH PAPER

(Abridgement)

Long before the invention of the paper-making art by Ts'ai Lun, there had been in existence in the olden times the bark cloth paper and manufacture of which had continued even after the appearance of the 'Paper of Marquis Ts'ai' or the 'True Paper'. The *ku-pu* 穀布 paper in Lu Chi's 陸璣 *Shih shu* 詩疏 is an example. The true paper, although light, thin and low in price, was pliable, fragile and incapable of withstanding damp, whereas the *ku-pu* paper, being coarse and thick, could resist damp and was quite durable. Therefore, the paper money, also called *chu-pi* 楮幣 (*chu* is the paper mulberry, *chu-pi* means *chu* paper currency) or *chu chao* 楮鈔 (notes made of *chu* paper), in circulation in China down from the Tang and Sung Periods, had been minted simply with the bark cloth paper, or at least, the ancient beating method of making bark cloth paper was adopted in the manufacture of the paper for the mintage of such notes. In consideration of the fact that the *chu-chao* of every issue was prescribed to circulate for three years and seven years in the Sung and Yuan Dynasties respectively, namely, each bill would be replaced by a new one only at the end of 3 or 7 years circulation, it seems almost impossible for the delicate and easily breakable true paper to stand such lengthy circulation. The system of *chu-pi* is recorded in the *Pi shih lei pien* 稗史類編 by Wang Chi 王圻 of Ming Dynasty as follows:

Po Ling 伯陵, a minister of Hsuan Yuan 軒轅 (Huangti or the Yellow Emperor), began to make *chu-pi* with cloth or silk. Emperor Wu 武帝 of Han Dynasty started to mint *p'i-pi* 皮幣 (hide-money). It was Hsien Tsung 憲宗 of Tang Dynasty who first published the *kuan-tzu* 關子 (draft or money order), called *fei chien* 飛錢 (flying money) at that time. Later, Hsiao Tsung 孝宗 of Sung initiated for circulation the *hui-tzu* 會子 (paper money, like the present check or draft) and Shih Tsu 世祖 of Yuan Dynasty started issuing the *chiao chao* 交鈔 (Paper currency).

Again, a passage in the *Ssu chao chao pi tu lu* 四朝鈔幣圖錄 (Illustrated Numismatic Records of Four Dynasties) by Loh Cheng-yu 羅振玉 of the Ching Dynasty, narrates as follows:

It is stated in the Chapter of *Tsai shih* 載師 (Local Official System) of *Chow kuan* 周官 (another name for the Book of *Chow li*) that *li-pu* 里布 was used in the districts wherein there were no hemp or mulberry trees. Based on former Cheng Ssu-nung's 鄭司農 interpretation, *li-pu* was a printed cloth document, 2 inches wide, 2 feet long, and used as a medium of exchange in business. Sun I-jiang 孫詒讓 construed that *li-pu* was a piece of cloth with characters printed and seal stamped thereon, which set an example for the *chu-pi* of later ages. Unfortunately, Ssu-nung made his explanation merely in accordance with some old hearsay information and it still remains unknown as to the details of its pattern and circulation. The creation of *chu-pi* began, in reality, with the *fei-chien* of Tang time and the *chiao-tzu* 交子 (Medium of exchange made of paper) of the Sung period, which, if issued by individuals or business establishments, would cause less inconvenience in their transit than the metal or other heavy currency; but would lead in endless disadvantages and evils if issued by the government (Lo, 1914: 1).

In my opinion, both of the silk or cloth moneys made under the time of the Yellow Emperor as well as the *li-pu* recorded in *Chow kuan* should not be termed as *chu-pi*. Emperor Wu of Han changed his monetary system to *p'i-pi*, as manifested in Vol. 8 of *Wen hsien tung kao* 文獻通考 by Ma Tuan-lin 馬端臨:

Hide money was put forth in the 4th year of the reign of Yuan Shou 元狩. Now, the hide money is made of white deer skin, a square foot in size, margined with hemp threads, at a value of four hundred thousand. The feudal princes, earls and even members of the Imperial House must offer such *p'i-pi* as a gift before they may be granted an audience by the Emperor.

The above quotation apparently indicates that deer skin was used to make currency during the early years of the Han Dynasty. This paper is devoted primarily to the discussion of the variety of antique *chu-p'i* made of the bark of *chu* or of other trees, as their various qualities and minting techniques were closely related to the ancient bark cloth paper, while their systems, patterns and manner of circulation will not be dealt with herein. As a matter of fact, the *chu-pi* was originated with the *kuan-tzu* or *fei-chien* of Tang Period (Yang, 1952: 51); however, few data contained in the available documents or records can be depended upon for discussion of the coinage of the dynastic currency of Tang. Cited below is a detailed description of the minting processes of the *chiao-tzu* which circulated in Sze-chuan during the Northern Sung, that was quoted by Tsao Hsueh-chün 曹學佺 of Ming Dynasty in his *Shu chung kuang chi* 蜀中廣記 (General Sketch of Szechuan) from Fei Chu's 費著 (Yuan time) *Chien pi pu* 錢幣譜 (Numismatic Records):

In order to overcome the difficulty in conveyance of the then cash (probably metal money) and in the interest of facilitating business transactions, the people

of Shu (present Szechuan Province) began to make the so-called *chiao-tzu*, notes or bills (something resembling the present draft or promissory note), with *chu* paper. They were minted with cryptic stamps and marks within and without, with inscriptions in both vermilion and ink, certified privately, and with the various values (Number of strings of cash) distinctly denominated... In the beginning year of Hsi Ning 熙寧 (1068) Supervisor Tai Meng 戴蒙 again requested that the government establish a Chao Chih Yuan 抄紙院 (Paper Scooping Mill or Factory so named because the paper was made by the process of lifting the pulp out in a scooping manner) to produce paper for the mintage of government notes so as to prevent counterfeit or other frauds. The two different circulating periods of Yin (引) paper money) as well as 'official Chao Chih' (Manufacture of the money paper by the government itself) were all initiated by Tai Meng. In May of the commencing year of Ta Kuan 大觀 (1187), the Chiao-Tzu Wu 交子務 (Bureau of Chiao-Tzu Affairs or the Chiao-Tzu Mint) was renamed as 'Chien Yin Wu' 錢引務 (Bureau of Money Affairs of the Mint). At the beginning, the paper used for the mintage of currency was provided by its own paper mill which was under the concurrent direction of the Chiao-Tzu Official. Later some other official was appointed to assume office of this paper mill concurrently in order to avoid corruption or other malpractices. In the year of Lung Hsing 隆興 (1163) an official was first specially assigned to take charge of this mill, which was then moved to Ching Chung Temple 淨衆寺 in the western district of the city. It was not until the 5th year of Shao Hsi 紹熙 (1194) that a Chao Chih Chang 抄紙場 (Paper Mill) had been erected by the side of the temple. This mill, with 61 paper makers and 30 miscellaneous helpers, was under the superintendency of an official specially assigned by the government. All pieces of such paper money, upon expiration of the fixed periods of circulation, would be taken back and replaced with new ones.

Although the above extract is mainly concerned with the organizations of the 'Chiao-Tzu Wu' or 'Chien-Yin Wu' and the 'Chao Chih Yuan' or 'Chao Chih Chang', the remarks such as 'official Chao Chih', '61 paper makers' and 'to make notes with *chu* paper' evidently reflect that the paper they produced was absolutely not the common paper. However, it is quite regrettable that records relative to its making processes have not yet been made available to date.

Later in the Southern Sung Period, a Hui-Tzu Wu 會子務 was organized in Lin An Prefecture 臨安府 as recorded in the following manner in Wu Tzu-mu's 吳自牧 *Meng liang lu* 夢梁錄 (Vol. 9) and *Hsien shun lin an chih* 咸淳臨安志 (Vol. 9):

The *hui-tzu* paper mill was located by the lake at Chih Shan 赤山. At first, paper was manufactured at Hui-chow 徽州, then at Chengtu 成都. In March of the 4th year of Chien Tao 乾道 (1168), this mill was set up at Lin An Prefecture

by imperial order based on a request of Chen Mi-tso 陳彌作, Vice minister of Military Ministry, in view of the difficulty involved in obtaining paper from Szechuan. The mill was originally situated at Chiu Chu Tzu 九曲池 and was later moved to the present site. Besides, one mill at An Hsi 安溪 which had been also under the direction of a *tu shih*, was incorporated into this one in September of the 2nd year of Hsien Shun 咸淳 (1266). There are no limits established for the number of skilled workers and of apprentices. At present, there are 1,200 people working in it.

One thing that can be concluded in accordance with the foregoing records is that there were 204 stampers and as many as 1,200 paper makers in the Hui-Tzu Mint in the time of Southern Sung. Narratives about the manufacturing of *hui-tzu* are also found scattered in Vol. 19 of *Chu wen kung* (alias *Hui-an*) *wen chi* 晦庵先生朱文公文集 (Writings of Chu Hsi), Vol. 2 of Chow Mi's 周密 Supplement to his "*Kuei Shin Tsa Shih*" 癸辛雜識 under the Article of *Liao chih* 撿紙, and Book 17 of Vol. II of *Chien Yen i Lai Chao Yeh Tsa Chi* 建炎以來朝野雜記 (Record of General occurrences within and without the Court, and a few other books; but few descriptions are found with respect to the quality of the paper as well as its manufacturing techniques.

Further, the *hui-tzu* issued in the Southern Sung Time in the area of Hu and Kwang 湖廣 (Present Hupei & Hunan Provinces) was called *hu hui* 湖會 (Currency of Hu). A pertinent anecdote is quoted below from Vol. 9 of *Wen hsien tung kao* 文獻通考 (by Ma, Tuan-lin 馬端臨):

The *tsao ssu* 漕司 of Hunan (General Director of the Grain Transport in the Area of Hunan) cleaned the examination papers of the failed candidates for the degree of *chü jen* 舉人 (A degree as master of art of the Chinese scholars in old times) as well as the spoiled, torn or void paper certificates issued to the tea merchants and used them as raw material to make paper for minting *hui-tzu*.

The paper remade with old paper was called *huan hun chih* 還魂紙 (Soul-returning paper). In this light, Vol. 8 of *Chuan pu tung chih* 泉布通志 (General Annals of Numismatic Matters), a ducing Yuan's 袁氏 *Chien chu kao* 錢楮考 (Study of Money and *Chu*), states:

Since the time of Kao Tsung 高宗 of the Southern Sung, *hui-tzu* had been employed in the southeastern area, which was just money made straightly with paper.

It is made very clear by the foregoing references that the *chu-pi* 楮幣 (Currency made of *chu* paper) of the Sung Period was initially made with the paper produced in Szechuan. The paper later manufactured at Hu-chow and Hang-chow was still a specific paper for making currency and the *hu hui* paper of Hunan and Hupei was simply nothing but *huan hun* paper. Therefore, Yang Lien-sheng 楊聯陞 (1953: 371) and Sogabe 會我部靜雄 (1951:72) are of the opinion that the notes or bills

made with local-manufactured paper during the Sung Time were qualitatively not so good as the *chiao-tzu* issued in Szechuan. It still remains a point at issue whether substantial specimens of the *chiao-tzu* and *hui-tzu* of the Sung Dynasty have been preserved to the present day. Pelliot (1951: 122-23), Carter (1955: 115) and Yang Lien sheng (1952: 54) are in doubt as to the verity of most of the moneys of Tang and Sung Dynasties as contained in the *Chuan pu tung chih* 泉布通志. Bowker disagrees with Pelliot's theory, stating that there are specimens of the Tang, Sung and Western Liao's currencies kept at the Fine Arts Museum of Boston. Again, Yang Lien-sheng (1953: 373) contradicts Bowker's statement by saying that the paper moneys of Tang and Sung Dynasties as recorded in the *Chuan pu tung chih* are marked, in most cases, with "pao chao", "Nei Ko", "Ko Pu" and other such terms; some ages were erroneously given.(?) However, some real paper notes or paper-money plates of the Western Liao, Western Hsia and Kin, all contemporary dynasties of Sung, have been handed down to us. Bowker (1943: 270) states that the same paper money as illustrated in Davis' book is also recorded in the *Chuan pu tung chih* 泉布通志 (Plate I:A). I have seen in Li Tung-yuan's collection a piece of rare paper money of Western Hsia, which is identical to the note (Plate I:B) contained in Vol. 6 (page 68) of *Chuan pu tung chih*. The paper is reddish brown in color and rather thick. In Li's judgement, it was most probably made of silk (Liang Er, 1963: P. 7). As for the currency of the Kin Dynasty, Bowker (1950: 313-15) has made public the relic of a "Cheng yu five-kuan" note, which is at the present in the possession of a Hong Kong collector. Perhaps this piece of paper money is similar to the "Five-Kuan Cheng Yu Pao Chuan" copper-plate (Plate I:C) contained in the *Ssu chao chao pi tu lu* 四朝鈔幣圖錄. With respect to the surviving copper-plates the Kin Dynasty used for printing money, Mullie (1937: 150-57) has disclosed a Hundred-Kuan note plate (Plate I:D), which is dated the 2nd year of Cheng Yu (1214 A. D.).

Illustrated by Plate II:A (Lo, 1914: Pl. 5) is a copper-plate of the Two-Kuan note in circulation in the period of Chih-Yuan (至元) of Yuan Dynasty, which has been preserved to the present day. Relics of the paper money of the same period which still remain in existence today include the Thirty-Wen (Plate II:B) and the Hundred-Wen (Lo 1914: Pl. b) notes. In addition, Li, Tung-yuan has in his collection, a Fifty-Tael Treasury-Note of the rule of Chih-Cheng of Yuan Dynasty and in his opinion, it was printed with the Szechuan paper of the Tang period (Liang Er, 1963: P. 7).

As for the raw materials of the currency of Yuan Dynasty, an account is found in Chapter 24 of the "Travels of Marco Polo" in the following manner:

How the Great Kaan caused the bark of tree, made into something like paper, to pass for money over all his country.

Again, Marco Polo made in the same chapter the following account:

He makes them take off the bark of a certain tree, in fact of the mulberry tree, the leaves of which are the food of the silkworms,—these trees being so numerous that all districts are full of them. What they take is a certain fine white bast or skin which lies between the wood of the tree and the thick outer bark, and this they make into something resembling sheets of paper, but black. They then cut these sheets into different sizes for notes of different denominations (yule, 1926: Vol. I, p. 423)

Dr. Bretschneider (History of Botanical Discoveries, Vol. I, p. 4) makes the following remark:

Polo states that the Great Khan caused the bark of great mulberry trees, made into something like paper, to pass for money. He seems to be mistaken. Paper in China is not made from mulberry-trees, but from the *Broussonetia papyrifera*. The latter tree belongs to the same order of *Moraceae* and the fibres of which are used also in some parts of China for making cloth. Marco Polo alludes probably to the same tree when stating that in the province of Cuiju (Kuei-chou) they manufacture stuff of the bark of certain trees, which forms very fine summer clothing.

Making reference to the writings of Julien (1869: 145-149) and Ahmed Sibab Eddin (Schefer, 1895: 17), Laufer (1919: 560) pointed out that Bretschneider was mistaken in stating that China manufactured paper with *chu* instead of mulberry. In reality, both *chu* and mulberry were used to make paper in China; and the paper made of the latter was mainly used for making currency. No records concerning the qualities of the currency of Yuan Dynasty were made in the *Yuan shih shih huo chih* 元史食貨志, Tao's *Cho keng lu* 陶氏輟耕錄 and the *Ssu chao chao pi tu lu*. Fortunately, the data furnished by Marco Polo may be based upon to make up such deficiencies in the historical documents of China.

The following passage in connection with the qualities of the Ming currency is observed in Vol. 81, entitled *Shih huo chih* 食貨志 of the History of Ming Dynasty:

In the 7th year of the rule of Hung Wu 洪武 (1374), the *Pao chao ti chu ssu* 寶鈔提舉司 (Somewhat like a Treasury Department) was established. In the following year, The *Chung shu sheng* 中書省 (The Ministry of National Administration) by the Imperial decree, began minting national currency with paper made of the bark of mulberry, for state-wide circulation. The currency published was 1 square foot high, 6 inches wide, dark green in color, and printed with ornate borders and an inscription, *Ta ming tung hsing pao chao* 大明通行寶鈔 (National Currency of the Great Ming Dynasty) across the upper front.

Moreover, the *Pi shih lei pien* 稗史類編 by Wang Chi 王圻 of the Ming Dynasty, narrates:

The variety of moneys circulating today can all trace their origins to the Kin Dynasty. In reality, the monetary system of Kin had been carried on

throughout the Yuan Period and which has again been continued in our own age. It is heard that the *pai-wen* notes 百文鈔 (Hundred-wen monetary unit notes) had still been in existence during the periods of Hung Hsi 洪熙 (1424-1425) and Hsuan Teh 宣德 (1426-1435). Even though the denomination of *kuan wen* 貫文 (kuan, a string of 1000 cash) still in use at the present time, with each *kuan* worth two 3-Li pieces 釐 (A thousandth of a tael of silver), its value is no longer the same as it was during the early years of this dynasty. The paper money currently employed is made with the bark of mulberry or *chu*. It is made an official foot long, eight inches wide and inscribed, in the standard style of writing, across the upper front, with *Ta ming tung hsing pao chao* 大明通行寶鈔 (National currency of the Great Ming Dynasty).

Judging from the above, it may be concluded that the practice of Yuan Epoch, had been followed by the Ming Dynasty in minting its currency with the sheets made of the bark of mulberry and *chu* through the 'beating process'. However, an account in Chang Erh-chi's 張爾岐 *Sung an hsian hua* 嵩庵閒話 (As cited in Vol. 8 of *Chuan pu tung chih*) describes to the following effect:

A hearsay which has been passed on from generation to generation says that the currency of the Ming Age was made with the paper of the composition-books and Penmanship Exercise Copies of the students of the Imperial Academy. It was dark green in color, probably resulting from the mixing of paper and ink.

Besides, the following passage of *Shih ta wen hsu chi chi ku lioh* 釋大聞續集稽古略 is quoted in Vol. 8 of the *Chuan pu tung chih*:

In the 9th year of the rule of Hung Wu, the Emperor, baffled in his initial attempt to make currency, was once told by certain god in his dream that it could be made with absolutely nothing but the scholars' hearts and livers. The Emperor was much disturbed by this dream and he informed his Queen Ma 馬 of it. She said: "That is very easy—the currency can be made with the composition and other academic papers of the scholars of the Imperial Academy." The Emperor then asked: "Why?" His Queen answered: "Didn't each of them put his whole heart into his composition? Is this not what the god meant?" The Emperor acted on his Queen's advice and finally had the currency manufactured successfully.

This hearsay, although unreliable, points out clearly that the currency of the early Ming Dynasty was made of a special type of paper. In addition, Meng I-kang 孟逸岡 stated in this same Vol. of *Chuan pu tung chih*:

As for the paper of the One-kuan notes, it was made of a mixture of composition and other scholastic papers, dark green in color and thick. It was nothing but the so-called *huan hun* Paper of today.

The One-kuan note of Ming Time, as shown in Plate II:C was in Loh Chen-yu's collection. In respect of this type of cash, the *Ssu chao chao pi tu lu* relates:

The sample as illustrated to the right is the One-kuan note of the reign of Hung Wu of Ming. It is recorded in Sheng Ta Ssu's 盛大士 *Chuan shih* 泉史 (盛氏大士泉史) that Pao Tzu-nien 鮑子年 and Hu Shih-cha 胡石查 all had such specimens. The copy I have was originally discovered in the inside of an image of Buddha by some low character at certain market-place amid the chaos in the year of *keng tzu* 庚子 (1900) of the rule of Kuang Hsu 光緒.

In view of the above, I am led to believe that the number of such One-kuan notes which still remain in existence today is not small. One piece of this money is also found attached to Cordier's Commentary on the "Travels of Marco Polo", but which is impressed with two seals on its face (yule, 1926: 426).

Based upon the *Ming shih shih huo chih* 明史食貨志, the currency issued in the Ming Dynasty consisted of six denominations, beginning with the 'One-kuan', then the 'Five Hundred' and decreasing proportionately down to the 'One Hundred-Wen'. With reference to Meng I-kang's belief, the paper of the 'One-kuan' note was thick and dark green in color because it was made of the mixture of the scholars' composition and lesson papers, while the papers of the notes and bills of all other lesser denominations were made in a different manner, and probably were made of the bark of mulberry and *chu* through the 'beating process'.

It was toward the close of the rule of Tao Kwang 道光 that the Ching Dynasty first brought forward the theory of establishing its own monetary system. But it was not until later in the incipient year of the rule of Hsien Feng 咸豐 that the Ching Empire had been compelled to publish money of its own system to meet the tremendous military expenses caused by the Hung and Yang Rebellion 洪楊之亂 or the Taiping Rebellion. Its currency consisted of two sorts: The *chien* 錢 (cash) and the *yin* 銀 (silver). The former was also called *pao chao* 寶鈔 (Government or bank notes) (Plate II:D), and the latter also called *kuan piao* 官票 (Government Cheques) or *yin piao* 銀票 (Silver Cheques). The following passage quoted from the *Ssu chao chao pi tu lu* delineates, in detail, their manufacture, style and quality:

The *pao chao* were made with the thick white paper (commonly known as the *shuang chao chih* 雙抄紙).....

In view of the fact that the *pao chao* and *kuan piao* of the Ching Era were made with the thick white *shuang chao* paper and the Korean paper respectively, it may be ascertained that, in most cases, for the manufacture of currency, some thick paper of pliability and durability had been required instead of the paper for general writing purposes.

A study of the *chu pi* of the Sung, Yuan, Ming and Ching four dynasties has been presented in the previous paragraphs. In fact, records or data found in the literary documents or historical volumes available, deal principally with the patterns,

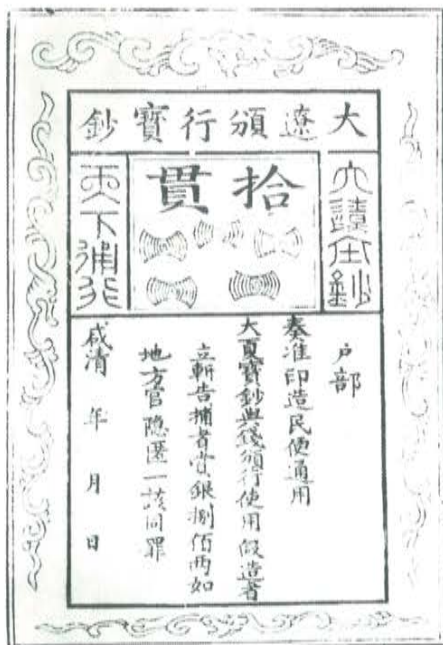
systems and functions of the various *chu pi* and provide very little information in the aspects of raw materials, qualities and making techniques with which this paper is chiefly concerned. The quality and making method of the *chiao-tzu* of Szechuan of the Ming Period are now unknown, while the *hui-tzu* circulated in the southeastern areas might probably be made with the 'True paper' (paper made by Ts'ai Lun's method). The *hu hui* was, in all likelihood, made with the *huan hun* Paper. Therefore, all issues of the *chu chao* of the Sung Time were required to be replaced with new ones at the end of 3 years' circulation. The quality and manufacturing measure of the *chiao-chao* of the State of Kin, Sung's contemporary, are also not known, but the initial issues of such *chiao-chao* were prescribed to be replaced at the end of seven years' circulation, and in later issues, the circulation term was unlimited; however, one additional provision was made that any pieces with the inscriptions or numbers becoming obscure or rubbed out or the paper frayed through wear and tear, were allowed to be exchanged for new ones at the proper government offices (Lo, 1914: 2). In consideration of these, it may be concluded that the *chiao-chao* of Kin was more durable than the Sung's *hui-tzu*. According to historical documents, the currency of the Yuan Dynasty was patterned after that of the Kin Dynasty and based on the records furnished by Marco Polo, it was made with the bark cloth paper. The currency of the Ming Dynasty consisted of the 'Big Note' and the 'Small Note'. This was perhaps made with the bark cloth paper and that probably with some paper manufactured through the 'True Paper' making process. The cash notes of the Ching Dynasty were made with *shuang chao* paper and the Government Cheques with the Korean paper.

As discussed in the foregoing, there are at the present in existence ancient paper moneys of the Liao, Hsia, Kin, Yuan, Ming and Ching Dynasties. If these notes of the first four dynasties are genuine ones, it will not be very hard for the paper-manufacture experts to analyze the various qualities and making methods of the papers with which they were minted. Based on records in available ancient documents, the so-called *chu-pi* of the old times had been made with the bark paper which was mostly made by beating the bark of *chu* and mulberry trees manually with a wooden stick. Because the fibers of the paper made in this manner were relatively long, strong, sticky and pliable, therefore the money stamped with which lasted very long. The 'beating method' may again be divided into two different processes: One is to pound the bark into paper directly; and the other to pound the bark first into pulp and then make paper from this pulp. These two paper-making processes can still be observed in Japan and Korea (Hunter, 1957: 148). The paper made directly from the bark by means of beating was but the barkcloth known today, or the *ku-pu* paper so called by Lu Chi 陸機 (261-30), or the *heh-ti* paper 赫蹏書 as contained in the History of the Former Han Dynasty—the paper which had been in existence prior to the paper-making art invented by Ts'ai Lun.

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A



B



C



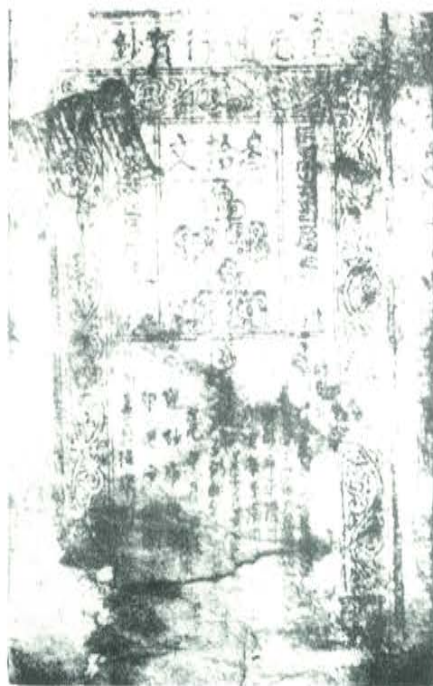
D

- A. 西遼天顯 蕭氏鈔
The Kan Tien Hou Hsiao Shih Note of Western Liao.
- C. 金貞祐五貫寶鈔 銅版
The brass plate of the five-kuan of Chen-yu of Kin Dynasty.

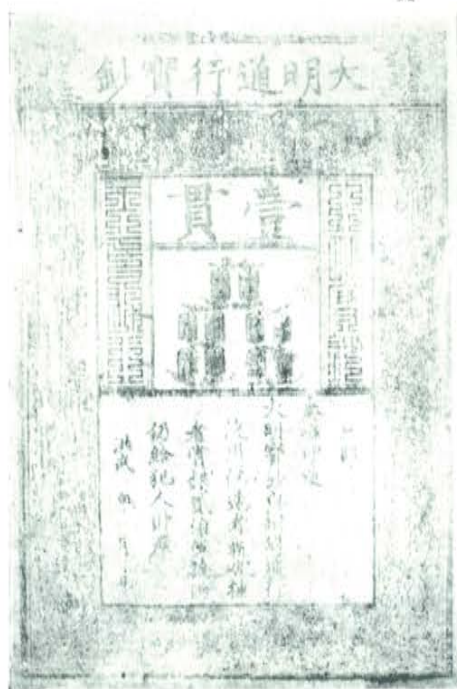
- B. 西夏崇宗 鈔
The note issued by Emperor Chung Tsung of Western Hsia.
- D. 金貞祐二年壹百貫鈔 版
The plate for the hundred-kuan note issued in the 2nd year of Chen-yu of Kin Dynasty.



A



B



C



D

A. 元至元二貫鈔銅版

The brass plate of the two-kuan note of Chih-yuan of Yuan Dynasty.

C. 明洪武一貫緒鈔

One-kuan chu note of Hung-wu of Ming Time.

B. 元至元三十文格鈔

A thirty-wen chu note of Chih-yuan of Yuan Dynasty.

D. 清咸豐二千文寶鈔

The two-thousand-wen treasury's note of Hsien-feng of Ching Dynasty.

三 唐宋以來的紙甲紙衣紙帷考

著者在研究樹皮布與造紙的第二文宋元以後造楮鈔與樹皮布紙中述及唐宋以來，因造紙幣（楮鈔）而得保存若干製樹皮布的技術。此外尚有紙甲、紙衣、紙帷等物，著者亦懷疑其名雖為紙，實則為前引吳陸璣詩疏的穀布紙，晉虞預表所謂布紙，多為樹皮布紙，而非真紙。蓋自後漢蔡侯紙發明後，其他造法仍繼續存在，如直至元費著的牋紙譜有云：

今天下皆以木膚為紙，而蜀中乃盡用蔡倫法。

觀費氏上文的語氣，元時雖天下皆以木膚為紙，當亦有不用蔡倫法造者。但在唐宋時對於魏晉人所稱穀布紙或布紙，似與蔡倫紙不再分別，概名之曰紙，所以用樹皮布做的鎧甲、衣服、帷幄，亦多叫做紙甲、紙衣、紙帷。茲再伸論之。

紙甲 在嘉慶六年刊行的廣西通志卷二七八引嘉慶四年全州志云：

全州西延洞皆獠人居，……績木皮為鎧者曰狗獠。

上引所謂「績木皮為鎧」，無疑義的當解作以樹皮布為鎧甲，可惜地方志書對於民族學的材料，記載多簡略，未能解述木皮鎧的制用。據 Bedloe 氏的工商業報告云：

在雲南貴州及廣西的諸蠻，皆用甲紙，此種紙甲可能起源甚古。在唐代有十三種甲，其中有紙甲最為奇特，褶疊紙而製甲，利矢不能穿洞。(1)

作者未見 Bedloe 氏的原書，上引資料承鮑克蘭女士在美國國會圖書館的筆記所抄示，未知 Bedloe 氏之說，根據何書。作者亦因廣西全州狗獠的木皮鎧，而推想到唐代的紙鎧，據唐六典：

武庫令，甲之制十有三：一曰明光，二曰光要，三曰細鱗，四曰山文，五曰鳥鎚，六曰白布，七曰阜絹，八曰布背，九曰步兵，十曰皮甲，十一曰木甲，十

(1) Bedloe, 1892, p. 494.

二曰銷子甲，十三曰馬甲。明光、光要、細鱗、山文、烏鎗、鑊子皆鐵甲也。

皮甲以犀兕爲之，其餘皆因所用物名焉。

據 Bedloe 氏之說，紙甲爲十三種甲之一，上錄唐六典所載尙無紙甲之名，或其中之白布與布背有一種爲紙甲。因唐代確用紙甲，如唐書卷一一三徐商傳：

商拜河中節度使，置備征軍凡千人，裝紙爲鎧，勁矢不能洞。

唐六典爲玄宗時(712—755)所纂，

當時無紙甲，徐商宣宗時(847—859)

人，紙甲起於唐末。迨宋代仁宗康定

元年(1040)命江南淮南軍製紙甲三

萬副，以給陝西戍軍，因江淮兩軍地

出紙著稱。上引據 Laufer 氏書著

錄，勞氏又據 Bedloe 之說，後者原

書未讀到，不知依據何書⁽¹⁾。又宋史

卷二七一李韜傳：

城中人悉被黃紙甲，爲火光所

照色俱白，此殊易辨。

李韜宋初人，乾德(963—967)中卒。

可見宋承唐後，製成紙甲，更盛於

唐。

至明茅元儀武備志卷一〇五載紙甲和紙臂手云：

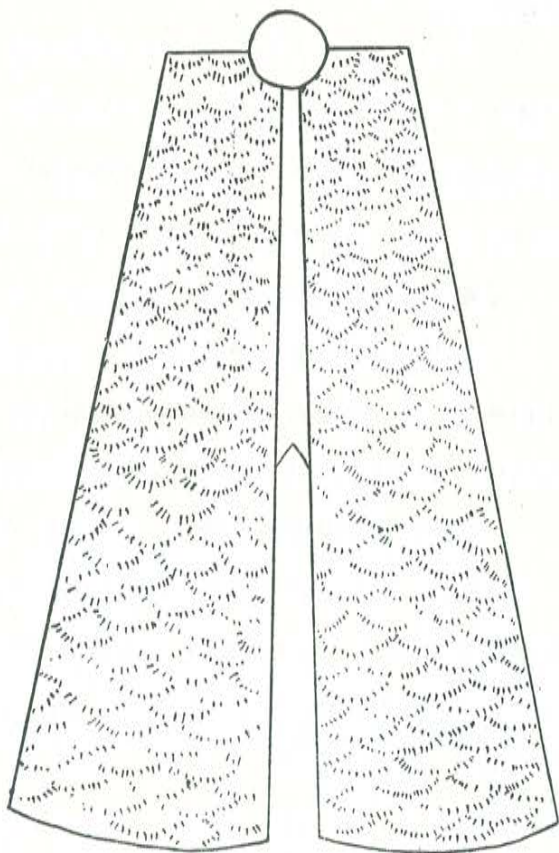
甲爲用命之本，當鋒鏑而立于

不敗之地者也。鐵甲易生鏽

爛，必不可用矣。倭夷土賊卒

用火銃神器，而甲有藤有角，

紙甲



插圖一 紙甲
Fig. 1. Paper armor.

(1) Laufer, 1914, pp. 293-294; Bedlore, 1892, p. 494.

皆可着用，但鉛子俱能洞入，且體重難久。今擇其利者，步兵惟有緝甲，用絹布不等，若紙綿俱薄，則箭亦可入，無論鉛子，今須厚一寸用綿密緝，可長至膝，太長則田泥不便，太短則不能蔽身，惟舟中可用重甲，蓋不行路不蹈泥田，賊惟銃子可及，非堅不能禦（插圖一）。

又紙臂手條云：

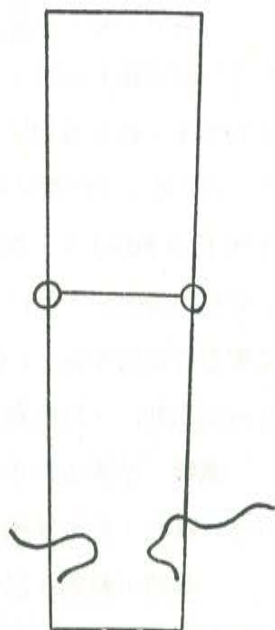
紙臂手，每一副用布內外四層，若干丈尺，綿花若干，繭紙若干張，絹線若干錢，如北方之鐵者，同此則活便輕巧，俱用整袖，上厚下薄，中有薄處在股曲之間，以便屈伸（插圖二）。

上錄茅氏對於造紙甲的方法與技術，言之欠詳，所用何種紙類亦未說明，在紙臂手條中云用繭紙，由此推測紙甲亦可能用的是同一紙質。這種紙甲最好用堅韌的高麗紙造，明末崇禎十年（1637），清征高麗降之，年貢中有大小高麗紙五千捲⁽¹⁾。據 Laufer 氏說，用紙十至十五層為甲，毛瑟槍彈不入⁽²⁾。又據 Bedloe 說，用紙與印花布各十五層互疊成的紙甲可禦手槍子彈或相距百碼的來復槍彈。又謂雲南土匪所製紙甲有多至六十層厚者，這種紙甲比較質輕而堅固，且價又

極廉⁽³⁾。照上所收材料在中國北方製紙甲所用的紙為繭紙或高麗紙，但在滇桂蠻夷所造紙甲更珍貴，則所用的紙，不能不想到廣西狗彘的木皮鐵，不是真紙而為樹皮布紙。

紙衣 上面我們假定滇桂兩省蠻夷是用樹皮布造紙甲，在北宋初年華中的江南尚用樹皮布製衣亦叫做紙衣，可作一旁證，如蘇易簡文房四譜卷四紙譜有云：

紙臂手



插圖二 紙臂手

Fig. 2. Paper arm guar

(1) Rockhill, 1905, p. 25.

(2) Laufer, 1914, p. 293.

(3) Bedloe, 1892, p. 494.

山居者常以紙爲衣，蓋遵釋氏云，不衣蠶口衣者也。然復甚煖，衣者不出十年，黃面而氣促，絕嗜欲之慮，且不宜浴，蓋外風不入而內氣不出也。

又云：

亦嘗聞造紙衣法，每一百幅用胡桃乳香各一兩煮之，不爾，蒸之亦妙。如蒸之即恒洒乳香等水，令熱熟陰乾，用箭韃橫卷而順熨之，然患其補綴繁碎。今黠歙中有人造紙衣段，可如大門闔許。近士大夫征行亦有衣之，蓋利其拒風于凝沍之際焉。陶隱居亦云：武陵人作穀皮衣甚堅好也。

上錄所謂製紙衣的紙，當爲樹皮布無疑，即據上述的資料，可以找出四個證據：（1）紙衣甚煖，在今玻利尼西亞的 *tapa* 衣的特點著之亦甚溫煖⁽¹⁾；（2）紙衣之料可煮，如上言‘每一百幅用胡桃香乳各一兩煮之’。真紙絕對不能煮，在今西里伯斯島的托洛加 (Toradja) 人，染樹皮布時，在鍋中煮過，取出塗以果汁⁽²⁾，所以能煮的紙一定是樹皮打的布紙。（3）‘今黠歙中有人造紙衣段，可如大門闔許’。這種大幅之紙，當是樹皮打成的布紙。（4）陶隱居南朝齊梁時人，所著名醫別錄謂武陵人作穀皮衣。蘇易簡北宋初人，以黠歙人造的紙衣段同爲一類，二者同爲樹皮布毫無疑義。

紙帷 中國古代不僅用樹皮布作衣服，亦如今之太平洋區 *tapa* 的文化一樣，也用之做帷幄，蘇易簡紙譜又云：

羊續字叔祖，以清率下，紙帷布被，以敗紙糊補之。時爲南陽守。

羊叔祖後漢靈帝時人，爲南陽太守時以紙爲帷；至宋陳旉負暄野錄卷下論紙品云：

外國高麗闍婆亦皆出紙。高麗紙類蜀中冷金，縝實而瑩；闍婆者厚而且堅，而長者至三四丈。高麗人云：抄時使幅端連引，故得爾長。胡人用作帷幄，修齋供，則張之滿室。

又負暄野錄提要考證作者陳旉的時代有云：

案閩書陳樞陳璣之孫，長樂人，紹熙元年（1190）進士。書中秦璽條內稱嘉定已卯（1219），光宗紹熙元年下距寧宗嘉定已卯首尾三十年。又西漢碑條內亦稱：聞之梁溪尤袤，惜不再叩之，袤亦當光寧之時，疑即此陳旉也。

(1) Linton, 1926, p. 51.

(2) Kennedy, 1934, p. 234.

陳標爲第十二世紀末至十三世紀初時人，當時輸入中國的高麗紙，雖不能確信爲何種紙類；而闍婆紙厚而且堅，且長者至三四丈，當爲樹皮布無疑，因現在瓜哇人仍造這種布作爲紙用⁽¹⁾。又高麗紙抄時使幅端連引，故得爾長。古人所熟知紙幅的長闊不過兩三尺，每對於長紙，不得其解。稍諳造紙術者，皆知抄紙用簾，抄時使幅端連引爲不可能之事，中國北宋時有造長紙法如蘇易簡紙譜有云：

黠歙多良紙，有凝霜澄心之號。復有長者可五十尺爲一幅，蓋歙民數日理其楮，然後于長船中以浸之，數十夫舉抄以抄之，傍一夫以鼓而節之，于是以大薰籠周而焙之，不上於牆壁也。由是自首至尾，勻薄如一。

照蘇氏紙譜所記如果正確，則在北宋初年，黠歙間尙用兩種造紙法：一卽紙衣段的造樹布法，另一爲長紙的造真紙法，由此可見黠歙產良紙，無疑的是受了樹皮布文化的影響，至於闍婆的長紙是用槌氈法（felting）打成的樹皮布，可以拼接至任何長度，所以闍婆高麗所產生的長紙多是樹皮布，因此‘胡人用作帷幄’。在今太平洋中羣島及南美洲的土著，至今尙用樹皮布作帷幄，其例甚多不再縷舉。由上考證，可知唐宋時的紙甲紙衣紙帷多用樹皮布所製造。

(1) Kennedy, 1934, pp. 229-230.

STUDY OF PAPER ARMORS, CLOTHES AND CURTAINS OF TANG, SUNG AND LATER DYNASTIES

(Abridgements)

Many records regarding the wide use of paper armors, paper clothes, paper curtains, etc. down from the Tang and Sung Dynasties are found in the Chinese literary works as well as historical documents. As a result of my extensive study and examination in this respect, I am now led to believe that all of these items, although so named, were not made of the 'true paper', but were made of the *ku-pu* 穀布 paper as described in Lu Chi 陸機 of the State of Wu's "Shih Shu" 詩疏 (Commentary on the Book of Odes). The cloth paper, mentioned in the Yu Yu 虞預 of Chin Dynasty's Memorial to the Throne was mostly bark cloth paper and not 'true paper'. In fact, other paper-making methods of ancient China had continued in use long after the invention of the Paper of Marquis Ts'ai in the Latter Han Dynasty. The following passage in the "Treatise on Note-Paper" 牋紙譜, written by Fei Chu 費著 of the Yuan Time is quoted for proof:

Nowadays, bark is used everywhere for making paper. But Ts'ai Lun's paper-making skill is adopted in every part of Shu 蜀 (present Szechuan Province).

Judging from the above quoted passage, it seems very clear that although bark was used to make paper all over the empire during the Yuan time, some paper manufacturing processes other than Ts'ai Lun's were also in employment. The *ku-pu* paper or cloth paper so called in the Wei and Tsin Dynasties and the paper of Ts'ai Lun were all called 'paper' and they were no longer differentiated during the periods of Tang and Sung. Accordingly, the armors, clothes and curtains made of bark were oftentimes termed as paper armors, paper clothes and paper curtains. A detailed discussion of this subject is presented in the following sections:

Paper Armor: The following record was made in the *Chuan chow chih* 全州志 (Local Record of Chuan-chow) of the 4th year of the reign of Chia Ching 嘉慶 and was later cited in Vol. 278 of the *Kwangsi tung chih* 廣西通志 (The History of Kwangsi Province), compiled in the 6th year (1801) of Chia Ching:

The Yao people inhabit the entire area of Si Yen Tung 西延洞 at Chuan-chow.... Those who beat and connect bark into armors are called *Kou Yao* 狗獠 (Dog Yao).

Unquestionably, 'beat and connect bark into armors' in this excerpt should be interpreted as to make armors with bark cloth. Unfortunately, like records in many other district annals, the above account also contains only simple and brief ethnological

data and give no details concerning the patterns and making methods of these bark armors. In his "Report on Industry and Commerce" 工商業報告 Bedloe states:

Paper armors are widely used among all the barbarian tribes in Yunnan, Kueichow and Kwangsi, which may, in all probability, trace their origins back to the olden times. There were 13 types of armors in the Tang Dynasty. The most peculiar one among them was the paper armor, which, made by means of folding paper in certain ways, was too strong to be pierced by sharp arrows.

The above cited information was among the notes Mrs. de Beauclair had taken at the American Congress Library. Since Bedloe's original book is not available to me, I do not know on what document did he base his statement. Speaking of the bark armor of the Dog Yao of Chuan-chow, Kwangsi, I am led to think of the paper armor of the Tang Epoch. There is a record in the *Tang liu tien* 唐六典 (Six Canons of Tang), which states:

In accordance with the order of the Department of Weapons, armors are classified into 13 types: They are *ming-kwang* 明光; *kwang-yao* 光要; *hsi-lin* 細鱗; *shan-wen* 山文; *wu-tui* 烏鎗; *pe-pu* 白布; *po-chuan* 帛絹; *pu-pei* 布背; *pu-ping* 步兵; *pi-chia* 皮甲; *mu-chia* 木甲; *hsiao-tze-chia* 銷子甲 and *ma-chia* 黑甲. The first five types are all iron armors; *pi-chia* is made of rhinoceros hide, while all the rest are named after the materials of which they are made.

Based upon Bedloe's writing, paper armor was one of the 13 different types of armors of Tang Time. But paper armor is not listed in the above record contained in the Six Canons of Tang. However, it is very possible that either the *pe-pu* or the *pu-pei* was a sort of paper armor, in consideration of the fact that paper armor was, in actuality, used in the Tang period. The Biography of Hsu Shang 徐商, Vol. 113 of the History of Tang, may be quoted for evidence:

Shang was appointed to the post of *chieh tu shih* (an official in the Tang Dynasty, like a magistrate) of Ho Chung 河中. He organized and kept ready an expeditionary army of 1,000 troops, clothed with paper-pleated armor which was so thick that even strong arrows could not pierce it.

The Six Canons of Tang was a work completed in the rule of Hsuang Tsung 玄宗 (712-755) and there was no paper armor during that time. Considering that Hsu Shang was born in the period of Hsuan Tsung 宣宗 (847-859), we have reason to believe that paper armor probably came into being towards the end of Tang Dynasty. Later in the beginning year of Kang Ting 康定 (1040) under the rule of Jen Tsung 仁宗 of Sung Dynasty, the Kiang Nan 江南 (Area south of the Yang Tze River) and Huei Nan 淮南 (Area south of Huei River) Armies were instructed to make 30,000 sets of paper armors for the garrison troops stationed in Shensi, because both areas where the Kiang and Huei Armies were posted were well known for paper

manufacture. The foregoing is extracted from Laufer's book, who quoted it from Bedloe (1917: 292-293). But on what document did Bedloe base his writing is unknown to me as I have not yet been able to get hold of his original work. Again, a passage is found in the Biography of Li Tao 李韜, Vol. 271, History of Sung Dynasty, which describes:

The people in the city (Ho Chung) were dressed in yellow paper armors, all of which appearing white in the light of bright flames, could be recognized without difficulty.

Li Tao, a general of the early years of Sung Dynasty, died in the rule of Chien Teh 乾德 (963-967). Thus, it may be concluded that the manufacture of paper armor of the Tang Dynasty had been continued and grew more thriving in the Sung Period.

Cited below for further demonstration are accounts contained in Mao Yuan-i's 茅元儀 Record of Weapons 武備志 (1621), relative to paper armor and paper arm protector:

(1) Paper Armor: Armor is the essential outfit for a warrior in battle, which protects him from defeat. In the south, foot-soldiers are mostly employed because of the geographical and climatic factors, and foot-soldiers must not be equipped with iron armor for it is too heavy to carry and in addition, it will be easily corroded by rain and humidity. Since the Wo 倭 (Japanese) barbarians and local bandits fight with fire arms, the armor made with rattan or horn may be worn, yet in addition to its weight, it is not lead-proof. In consideration of this, the infantryman should be armed with an armor made of silk or cloth. Further, paper and silk, being all thin, can be penetrated by arrows, not to say lead bullets, therefore, a special armor should be made, using pieces of silk joined together of one inch thick as raw material, the length of which should be to the knee; if too long, it would be inconvenient to the warrior when walking through paddy fields or muddy roads; too short, it can not cover the body. However, heavy armors may be worn when going to war in a boat, for the warriors then do not have to walk or trudge through muddy paddy fields. But whenever within the reach of the bandits firearms, only exceptionally strong armors can be depended upon for protection (Fig. 1).

(2) Paper Arm Guard: Each set of the paper arm guard, is made of cloth in four layers, totally several hundred feet long, with certain amount of cotton and certain number of sheets of cocoon paper padded or lined in between these layers and silk thread is used for stitching. The paper arm guard, made in this manner, is as good as the iron ones used in the North. It is light to wear and allows free movement. Its sleeve is of arm's length, with the upper part thick and the lower part thin, with a very thin portion around the elbow so as to permit any turn or stretch of the arm (Fig. 2).

The above record of paper armor made by Mao does not contain a detailed

description concerning the making processes and techniques. In addition, it does not specify the type of paper used for raw material. Inasmuch as cocoon paper was recorded by Mao as being used in making the paper arm guard, it may be inferred that paper armor was possibly also made with paper of the same quality. Such paper armor could best be made with the strong and durable Korean paper. In the 10th year of the rule of Chung Chen 崇禎 (1637) of late Ming, Ching conquered Korea and she had since paid 5,000 rolls of large and small Korean paper among her yearly tributes to China. In Laufer's belief, an armor made of ten to fifteen layers of paper would be impenetrable by Musket bullets. Further, Bedloe maintained that a paper armor made by interlaying and folding 15 layers each of paper and printed cloth together would be capable of resisting bullets of small arms as well as rifle shots at a distance of 100 yards. Again, he said that the paper armors which the bandits in Yun-nan made were sometimes thickened by padding the paper in 60 layers; such paper armors were relatively light, durable and inexpensive.

In view of the data presented above, it may be determined that in the North of China, cocoon or Korean paper was used for paper-armor manufacture, whereas the paper armors produced by the barbarous Man and Yi tribes in Yun-nan and Kwangsi were of a better quality, and they might possibly be made of bark cloth paper, and not true paper, in consideration of the bark armors of the Dog Yao of Kwangsi.

Paper Clothes: It has been taken for granted in the above that the Man and Yi tribes in Yun-nan and Kwangsi used bark cloth to make paper armors. The fact that bark cloth was still in use for making clothes, named paper clothes, in the area south of the Yang Tze River of Central China during the early years of the Northern Sung can serve to corroborate the accuracy of this assumption. For further support of this assumption, Shu Yi Chien's 蘇易簡 *Wen fang ssu pu* 文房四譜 is adverted to, in Vol. IV of which, entitled "Treatise on Paper", it narrates:

The inhabitants of mountainous areas, who did not wear silk dress in compliance with Siddhartha's precept, often made garments with paper. Such paper clothing was very warm, but due to its complete lack of ventilation, one who wore it all the time, would, in 10 years or less, look jaundiced and become asthmatic and free from being bothered by desires or addictions; also it was not fit for him to take bath.

It is also heard that the paper-clothes making processes consist of: decocting 100 strips of paper with one tael each of walnut and frankincense. This stage of the processes can as well be accomplished by means of steaming. Today, some people at I 黟 and Hsi 歙 (In the southern part of present Anhwei) are producing paper sheeting for clothes, which is normally as long as a leaf of the common main door. Recently, some *shih tai fu* 士大夫 (Gentry or men of letters) have

also put on such paper garments when going on a long journey, for they can provide protection against the cutting wind and freezing cold. Tao Yin-chu 陶隱居 also remarked that the people of Wu Ling 武陵 (In the western part of present Hunan Province) made clothes with *ku-pu*, which wore long and looked good.

It leaves no doubt that the paper used for making paper clothes in the preceding quotation was, in effect, bark cloth. Four points which serve to substantiate this conclusion are readily seen right in the same quotation: (1) "Such paper clothing was very warm"—The tapa dress of today's Polynesia is also warm (Linton, 1926:51); (2) The clothing material for paper garments was sometimes processed by boiling, as shown in the above quotation "decocting 100 strips of paper with one tael each of walnut and frankincense."—Even at present, the people of Toradja on the Celebes, when dyeing bark cloth, first heat it in boiling water in a pot; then take it out and stain it with fruit juice (Kennedy, 1934: 234). Hence it can be summed up that the paper which could stand boiling must have been the bark cloth paper, namely the false paper; (3) Today, some people at I and Hsi are producing paper sheeting for clothing, which is normally as long as a leaf of the common main door.—In all probability, the paper of such tremendous size, must be the cloth paper produced of bark by beating process; and (4) Tao Yin-chu, a man of the Chi and Liang period of the Epoch of Division between North and South 南北朝 said in his "*Ming yi pei lu*" 名醫別錄, "The people of Wu Ling 武陵 made clothes with *ku-pu*". Shu Yi-chien 蘇易簡 of early Northern Sung Dynasty, considered that the paper sheeting for clothes manufactured at I and Hsi and the *ku-pu* used for making clothes at Wu Ling were one and the same, and doubtlessly, nothing but the bark cloth.

Paper Curtains: Bark cloth was not only used for making clothes in ancient China, but, like the tapa culture of present Pacific area, was also used to make curtains, screens, tents and nets. For example, Shu Yi-chien stated in his "Treatise on Paper" as follows:

Yang Hsu 羊續, alias Shu-tsu 叔祖, guided his subordinates by integrity and he used paper curtains and cloth quilts, which were mended with patches of scrap paper, during the period when he was the *tai shou* 太守 (Prefect) of Nan-yang 南陽.

Yang Shu-tsu, a contemporary of Emperor Ling 靈帝 of the Later Han Dynasty, used paper for curtains when he served as the prefect of Nan-yang; later, Chen Yu 陳昱 of Sung Period, under the "Essay on the Quality of Paper" 論紙品 contained in Vol. II of his *Fu hsüan yeh lu* 負暄野錄 remarked:

Among the foreign countries, Korea and Java 閩婆 are also paper manufacturers. The Korean-made paper, similar to the *leng-chin* 冷金 (Name of a type of paper) of Shu (Present Szechuan), is compactly fabricated and lustrous. The paper of Java is thick and solid. The longest of which measures 30 or 40 feet.

Some Korean people explained that such long paper was made by linking the ends of several layers of pulp together during the lifting process (lifting the layer out of water on a screen). The people of Hu 胡人 (Tartars) used such long paper to make tent which, when pitched, would readily become a room for the occasion of religious fasting or sacrificing.

Based upon the examination relating to the time of Chen Yu, the author of "*Fu hsüan yeh lu*", contained in the book, "Compendium of *Fu hsüan yeh lu*", it can be confirmed that Chen Yu lived during the period of the closing part of the 12th century and the beginning portion of the 13th century. The Korean paper was imported into China during that time, but the quality and type of which can still not be identified. However, the then imported paper from Java was thick, stiff and sometimes as long as 30 or 40 feet, and it was, undeniably, a kind of bark cloth, for even at the present time, the people in Java are still making such cloth to be used as paper (Kennedy, 1934: 229-230). Moreover, as it was mentioned before, the Korean long paper was made by linking the ends of several layers of pulp together during the lifting process. However, to the general population of olden times, who were commonly familiar with the normal paper of no more than 2 or 3 feet in length as well as in breadth, the unusually long paper was invariably something incomprehensible. Anyone who was acquainted with the paper-making skill, knew that screen was used to raise the pulp out of water, and that it was impossible to connect several pulpy sheets during the lifting process, to make a long paper. There was in practice a long-paper making method in China during the period of Northern Sung. A passage is quoted from Shu Yi-chien's "Treatise on Paper" for illustration:

I and Hsi were remarkable for their production of paper of good quality, which was generally known as "Frozen frost and peaceful heart (indicating the paper was as white as the stiff frost and as pure as a peaceful heart)". The longest of such paper sometimes measured about 50 feet per sheet. The paper producers at Hsi trimmed and prepared the *chu* 楮 (paper mulberry) several days at first, then immersed it in a long boat; next, during the 'lifting process' tens of men would raise simultaneously the pulp out of water on a screen, with one man standing by, beating a drum to time their movement. Immediately after this, a big frame was used to fume it over fire instead of hanging it to dry on a wall. Consequently, the paper made through such processes was even-surfaced and of the same thickness from one end to the other.

If this record in Shu's "Treatise on Paper" is true, it can then be concluded that during the time of early Northern Sung, two paper-making methods remained in exercise at I and Hsi. One was the bark cloth making method used in making paper sheeting for clothing; the other was the true paper manufacturing skill in application for producing long-sized paper. Thus, it can further be determined that the production

of good paper at I and Hsi had, undoubtedly, been influenced by the bark cloth culture.

The long paper of Java was, in effect, a type of bark cloth made by the felting process, and, of course, it could be made to any length desired by means of joining numbers of pieces together. Inasmuch as most of the long paper produced by Java and Korea was bark cloth, the Tartars adopted it as tent material. In addition, even at the present time, the aborigines on many islands in the Pacific as well as in South America are still making tents with bark cloth.

As a result of the foregoing research and examination, it may be ascertained that the paper armors, clothes, curtains, etc. of the Tang and Sung ages were, in large part, made of bark cloth.

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四 北宋初年的金粟牋考

著者在唐宋以來的紙甲紙衣紙帷考一文中，考證唐宋時代所稱的紙甲，紙衣和紙帷的紙，可能都是樹皮布紙用作衣料的。而其時樹皮布亦或用爲寫字的紙，所以著者也懷疑北宋初年的金粟牋可能亦是樹皮布用作紙來寫字的，故本文又作一小考證以志存疑。

金粟的名稱由來，明胡震亨海鹽縣圖經云：

金粟山，縣西南三十五里，金粟寺在金粟山下，吳赤鳥中建。金粟寺有藏經千軸，用硬黃繭紙，內外皆蠟，摩光瑩，以紅絲闌界之。書皆端楷而肥，卷卷如出一手，墨光黝澤，如髹漆可鑒。紙背每幅有小紅印，文曰：金粟山藏經紙，後好事者剝取爲裝璜之用，稱爲宋箋，徧行宇內，所存無幾，有言此書紙當是唐藏，蓋以其製測之。然據董穀以爲紙上間有元豐年號則其爲宋藏無疑矣。

所以金粟牋又名金粟山藏金紙，簡稱藏經紙。胡震亨明萬曆時人以藏經紙爲硬黃繭紙，然上文所引的董穀爲正德時人，謂藏經紙造法已不傳，在他所著澉水續志中云：

大悲閣內貯大藏經兩函，萬餘卷也。其字卷相同殆類一手所書。其紙，幅幅有小紅印。曰：金粟山藏經紙，間有元豐年號，五百年前物矣。其紙內外皆蠟，無紋理，與倭紙相類，造法今已不傳，想即古所謂白麻者也。當時澉鎮通番，或買自倭國而加蠟與？日漸被人盜去，四十年而殆盡，今無矣。計在當時，糜費不知幾何，諒非宋初盛時，不能爲也。

又明陳繼儒妮古錄云：

宋紙，于明處望之無簾紋，按藏經紙亦然，大都繭紙爲之，無簾紋也。

曾子愉春宵鶴唳引：

范成大云：現紙作蠟色，兩面光瑩，多寫大藏經，流傳于世，故有宋箋元箋之稱，近年所造者幅小于昔，雖便於用，而無古法。

清張燕昌金粟牋說：

案吾邑藏經有金粟法喜兩種，今寺中散佚殆盡，收藏家間得尺幅，亦頗寶貴。……又案金粟法喜，造紙大小相同，度以宋三司布帛尺，高一尺七寸有奇，長三尺三寸，質料用繭紙，兼硬黃法也。

上錄自宋至清多數學者以為藏經紙的質料用繭紙，惟董穀獨持異議，謂造法明時已失傳。又藏經紙或金粟牋有接縫與揭用兩問題似與樹皮布製法有關，如陶宗儀輟耕錄卷二九黏接紙縫法云：

王古心先生筆錄內一則，方外交青龍鎮隆平寺主藏僧永光字寂照，訪余觀物齋，時年已八十有四。話次，因問光前代藏經接縫如一線，日久不脫何也。光云：古法用楮樹汁、飛麵、白芨末三物調和如糊，以之黏接紙縫，永不脫解，故如膠漆之堅。先生上海人。

明屠隆考槃餘事卷二紙箋宋紙條云：

有澄心堂紙極佳，宋諸名公寫字，及李伯時畫，多用此紙。毫間有紙織成界道，謂之烏絲欄。有歙紙，今徽州歙縣地名龍鬚者⁽¹⁾，紙出其間，光滑瑩白可愛，有黃白經箋，可揭開用之。

明末文震亨長物志卷七紙條亦云：

宋有澄心堂紙，有黃白經箋，可揭開用。

上述藏經紙無簾紋，可能是用槌氈法 (felting) 打製樹皮而成；至於黏接紙縫永不脫解，而又能揭開，製樹皮布亦用這種同樣的黏接或黏疊 (pasting) 方法，使打成樹皮布小塊的黏疊拼成大張，薄的黏疊為厚的。藏經紙因有上面三特點，所以作者懷疑它是樹皮布或紙，而明儒多數謂是繭紙，或他們已不知造布紙之法，藏經紙既非真紙，而以為是繭紙。好在金粟寺藏經紙流傳于世不少，將來如能找到實物，請造紙專家分析研究之後，則董穀疑為是倭紙，明儒認為是繭紙，及作者以為是布紙，這個爭論的問題始得解決，現在祇得存疑而成懸案，但據文獻上的資料而作進一步假設，藏經紙可能不是蔡倫法造的真紙。

(1) 乾隆三十六年歙縣志卷六物產條載有龍鬚紙已由地名成為紙名。

STUDY OF THE CHIN-SHU PAPER OF EARLY NORTHERN SUNG

(Abridgement)

In my previous article, "Study of Paper Armors, Clothes and Curtains of Tang, Sung and Later Dynasties", I arrived, after some thorough and careful research, at a conclusion that during the Tang and Sung periods, the bark-cloth paper was used as clothing material to make armors, clothes, curtains and other like items. During that time, the bark cloth might also be used as writing paper, therefore, I was led to believe that the chin-shu paper of the early part of the Northern Sung was probably also a sort of bark cloth employed as writing paper. Presented in this paper is the result of the small research work I made on this supposition.

The following narration quoted from Hu Chen-heng 胡震享 of Ming Dynasty's *Hai yen hsien tu ching* 海鹽縣圖經 (Topographical and Geographical Records of Hai-yen Hsien) explains how the name of *chin-shu* paper was derived:

"Chin Shu Shan (Mountain) lies 35 li southwest of the city of the *hsien* government. Chin Shu Temple, located at the foot of Chin Shu Shan, was built during the years of Chih Wu 赤烏 of Wu Dynasty. There were a thousand scrolls of classics and scriptures kept at this temple, which were written on a sort of stiff, yellow cocoon paper, polished with wax inside and out, margined with red silk thread. All volumes seemed to be written by one man with a formal, precise and grand penmanship; the ink was as black and glossy as the pitch dark varnish. A red stamp reading "Classics-Preserving Paper of Chin Shu Shan" was impressed on the back of each breadth of paper. Unfortunately, except a very few, all of these paper manuscripts were taken out of the Chin Shu Temple in later years and misused for decorative and many other purposes. They were thus widely scattered and called the "Sung Collection"; some people, based upon its manufacturing measure, claimed such paper belonged to the "Tang Collection" However, in consideration of the title of reign, Yuan Feng 元豐, impressed on the paper, Tung Ku 董穀 expressed that it should be beyond doubt that it was of "Sung Collection".

The *chin-shu* paper, also named the Classics-Preserving Paper of Chin Shu Shan, was briefly called the Classics-Preserving Paper. Hu Chen-heng, 胡震享 a man of the rule of Wan Li 萬曆 of Ming Dynasty, stated that the Classics-Preserving Paper was a sort of hard, yellow cocoon paper. On the other hand, Tung Ku, as contained in the above citation, was a man under the reign of Chen Teh 正德 and he said that the manufacturing method of the Classics-Preserving Paper had not been passed

down. For example, he said in his *Kan sui hsu chih* 激水續志 (Supplement to the Topographical Records of Kan River):

Kept at Ta Pei Ko 大悲閣 were two cases of manuscripts of classics and scriptures, totalling over ten thousand copies. The handwriting of each copy was so similar to that of any other that all copies appeared to have been written by the same hand. On each breadth of the paper was put a small red stamp inscribed with "Classics-Preserving Paper of Chin Shu Shan". In addition, the title of reign of Yuan Feng 元豐 was found in some of these stamps apparently indicating they were documents of more than 500 years old. The paper, waxed on both sides, without any streaks, resembled the Wo 倭 paper. Its making skill is no longer known. I imagine it might be the so-called *pai ma* 白麻 (white hemp) of ancient times. In view of the fact that trade was done with the barbarians at the town of Kan at that time, it was possible that this paper had been imported from the country of Wo (Japan) and the wax was put on it afterwards. However, in the past 40 years, these hand-copied documents have been stolen, copies after copies, or lost in some other manner, and now not even one copy is left. It can hardly be imagined how much money had been spent, even at that time, in making these documents. It is therefore conceivable that these documents could not have been made unless in the prime of the Sung Dynasty.

Another excerpt is quoted below from *Ni ku lu* 妮古錄 of Chen Chi-ju 陳繼儒 of Ming Time:

"Like the Classics-Preserving Paper, the Sung paper also shows no screen veins in its fabric, when looked at in the light. As usual, no such veins are seen on almost all sorts of cocoon paper".

Again, *Chung siao ho li* 春宵鶴唳 of Tseng Tse-yu 曾子愉 quoted:

Fan Cheng-ta 范成大 was once cited as saying: "The cocoon paper, waxy in color and lustrous on both sides, is often used for the writing of long classics to be handed down and is often referred to as the Sung paper or Yuan paper. The paper produced in recent years, smaller in size than that of old, although convenient for use, is not made by the ancient method.

In his essay on the *chin-shu* Documents 金粟箋說, Chang Yen-chang 張燕昌 of the Ching Period stated:

Formerly, there were two types of classics preserving paper in my home district, *chin shu* and *fa hsi* 法喜. However, they have all been lost and not a piece of which can be found in the temple today. In case, some collector happened to get hold of a piece even less than one foot long, he would value it as a very rare item. . . . In addition, the *chin shu* paper and the *fa hsi* paper were made in almost the same size; more than 1 ft and 7 in. high and 3 ft and 3 in. long by the standard measures of the Sung Period. Their raw material was the same

as that of the cocoon paper, but they were made stiff and yellow in color.

All of the scholars from the Sung down to the Ching Dynasties, as noted above, were of the opinion that the quality of the Classics-Preserving Paper was similar to that of the cocoon paper, except Tung Ku who took a different view by stating that the tradition of its manufacturing method had been lost in the Ming Time. Further, the Classics Preserving Paper or the *chin shu* Paper showed seams and layers which could be peeled off for use. These two points, it seems to me were most probably related to the making process of bark cloth. For demonstration, an excerpt is extracted below from Tao Tsuny-I's 陶宗儀 *Cho keng lu* 輟耕錄 (Vol. 29, Seaming Paper by Pasting):

There is an episode in Wang Ku-hsin's 王古心 memoirs which narrates: My friend, Yung Kwang 永光, alias Chi Chao 寂照, a Buddhist priest, taking charge of collection at the Lung Ping Temple 隆平寺 at Ching Lung Chen 青龍鎮 came to visit me at the Kwan Wu Chai 觀物齋 at the age of eighty four. In the course of our conversation, I asked him why the seams in the Classics Preserving Paper of former ages did not become loose or break? He answered that in the ancient method, *chu* (paper mulberry) juice, *fei mien* 飛麵 (a sort of flour or meal) and *po chi* 白芨 powder (*po chi*, a plant, it has mucilaginous roots which are used for various purposes.) were mixed together with water into a kind of paste, which was as sticky and steadfast as glue and varnish, therefore, the seams conglutinated by it would never get loose or break up. Yung Kwang was a native of Shanghai.

The following account is derived from the article of Sung Paper in the Chapter on Paper, Vol. II of *Kao pan yu shih* 考槃餘事 of Tu Lung 屠龍 of Ming Dynasty:

The quality of the Cheng Hsin Tang Paper 澄心堂紙 was superb. A number of the distinguished scholars of the Sung Period used it to write and Li Po-shih 李伯時 often used it for painting. There was also Hsi paper, which was made at a place named Lung Hsu 龍鬚 in Hsi Hsien of present Hui Chow 徽州 (a prefecture). It was smooth, bright and white. It was made in both yellow and white colors for use of copying Buddhist classics and its layers could be peeled off for use.

Again, there is a record, in Wen Cheng-heng 文震亨 of Ming Time's *Chang wu chih* 長物志, Vol. 7, under the subject of paper, which says as follows:

There was Cheng Hsin Tang Paper in the Sung period, which was made in both yellow and white colors for use of copying Buddhist classics, and its layers could be peeled off for use.

Considering that the Classics Preserving Paper, as described above, displayed no screen markings, it is likely that it might be made of bark through felting process. In addition, the seaming and pasting methods employed in joining small pieces of bark cloth into a big sheet or forcing several thin pieces into one thick piece were

quite similar to the fast seaming of the Classics Preserving Paper. Based upon these three characteristics of the Classics Preserving Paper, this author thinks that it might possibly be a sort of bark cloth or bark cloth paper, and that the majority of the scholars of the Ming Dynasty claimed it as cocoon paper probably because they were no longer aware of the cloth paper making skill. Fortunately, not a small amount of the Chin Shu Temple's Classics Preserving Paper has been handed down and is still in existence at the present time. When and if some of which is found in the future, some paper-making experts will be invited to make an analytical study of it, whereby a resolution would probably result as to the question in issue between Tung Ku, Ming scholars and this author. Nevertheless, in accordance with all the available literary and historical data, this author believes that the Classics Preserving Paper was probably not true paper made by Ts'ai Lun's method.

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五 樹皮布印花與印刷術發明

- 一、印刷的樹皮布文飾
- 二、斑文布爲印花的樹皮布
- 三、木印爲雕板印刷的過渡
- 四、印刷術發明的時期與地域

作者於民國五十年，在民族學研究所集刊第十一期，發表中國古代的樹皮布文化與造紙術發明一文，在文末的後語中曾說：“現在作者擬作進一步的假設：中國古代樹皮布文化不僅影響了造紙術，同時亦可說與中國四大發明中的另一發明印刷術有間接關係。蓋談中國印刷術發明的中外學者多數注意於雕板印書，但紙之主要用途，雖以寫字，然亦可以繪畫，漢書的赫蹠書即寫字於布紙，漢魏時蠻夷的斑文布，或即由雕板印畫於布紙，爲後世印花布的先河。作者的考證以爲古代雕板印畫必先於印字，其在技術相同，不過文字與花紋之別而已。現在限於時間與篇幅不能多述，他日擬另草樹皮布印花與印刷術發明一文再試論之”。

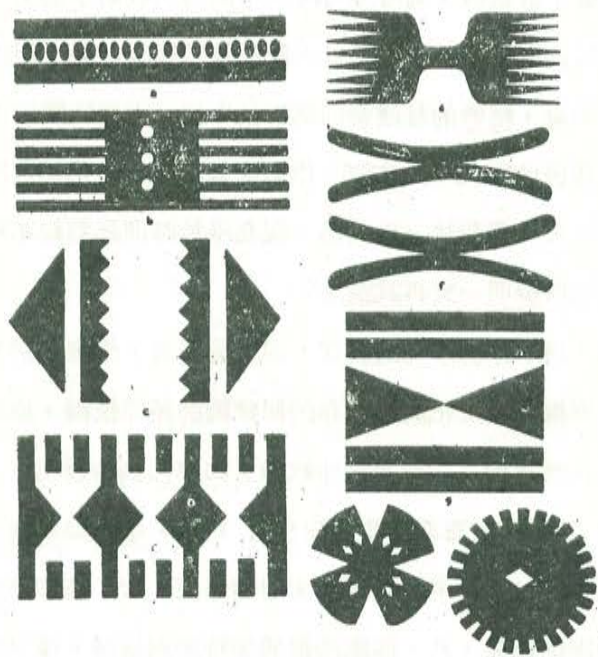
以前文的後語，用來作爲本文的引言，但尤有進者，作者在研究樹皮布文飾的印刷技術時，發現了與樹皮布文化同時並存的印紋陶的拍印技術，亦與印刷術發明有關的，故先將本文題目改爲樹皮布印花和印紋陶文飾與印刷術發明。共分八節：一、印刷的樹皮布文飾，二、斑文布爲印花的樹皮布，三、中國與東南亞的印紋陶，四、陶印模的用途問題，五、蠶印用於印布印木印陶印泥，六、模印磚瓦的花紋及文字，七、木印爲雕板印刷的過渡，八、印刷術發明的時期與地域。後又因篇幅過多，乃分成兩篇論文：以第一、二、七、八四節爲本篇，其餘四節另成一文，題爲印紋陶的花紋及文字與印刷術發明，將在本刊下期繼續發表。

一 印刷的樹皮布文飾

在太平洋區所產的樹皮布有本色的和有文飾的兩種：本色的樹皮布用作做日常衣

被的材料；有文飾的樹皮布用之做舉行儀式時所穿盛裝的衣料⁽¹⁾。製作樹皮布的文飾有兩種方法：繪畫和印刷；有時印刷以後再加繪畫。印刷樹皮布文飾的技術有六種：鏤空花模板(stencil designs)，陽紋花模板(tablet designs)，雕花木板(carved board)，小花木印(small stamps)，滾條木軸(wooden cylinders)，畫線竹筆(bamboo liner)，茲分述之。

(一)鏤空花模板 在西部玻利尼西亞的菲基羣島最盛行這種印花技術。據Thompson 氏的報告，製鏤空板的花模，先摺疊香蕉葉或露兜樹葉，剪取所要的花樣，將其展開，平舖在樹皮布上，再取一塊樹皮布蘸取顏色，印成花紋。其中小的花樣重複的使用。組成一較大的花樣。每一花樣的區域和單位都有名稱，如插圖一所示⁽²⁾。



插圖一 菲基羣島中 Lau 島的鏤空花模

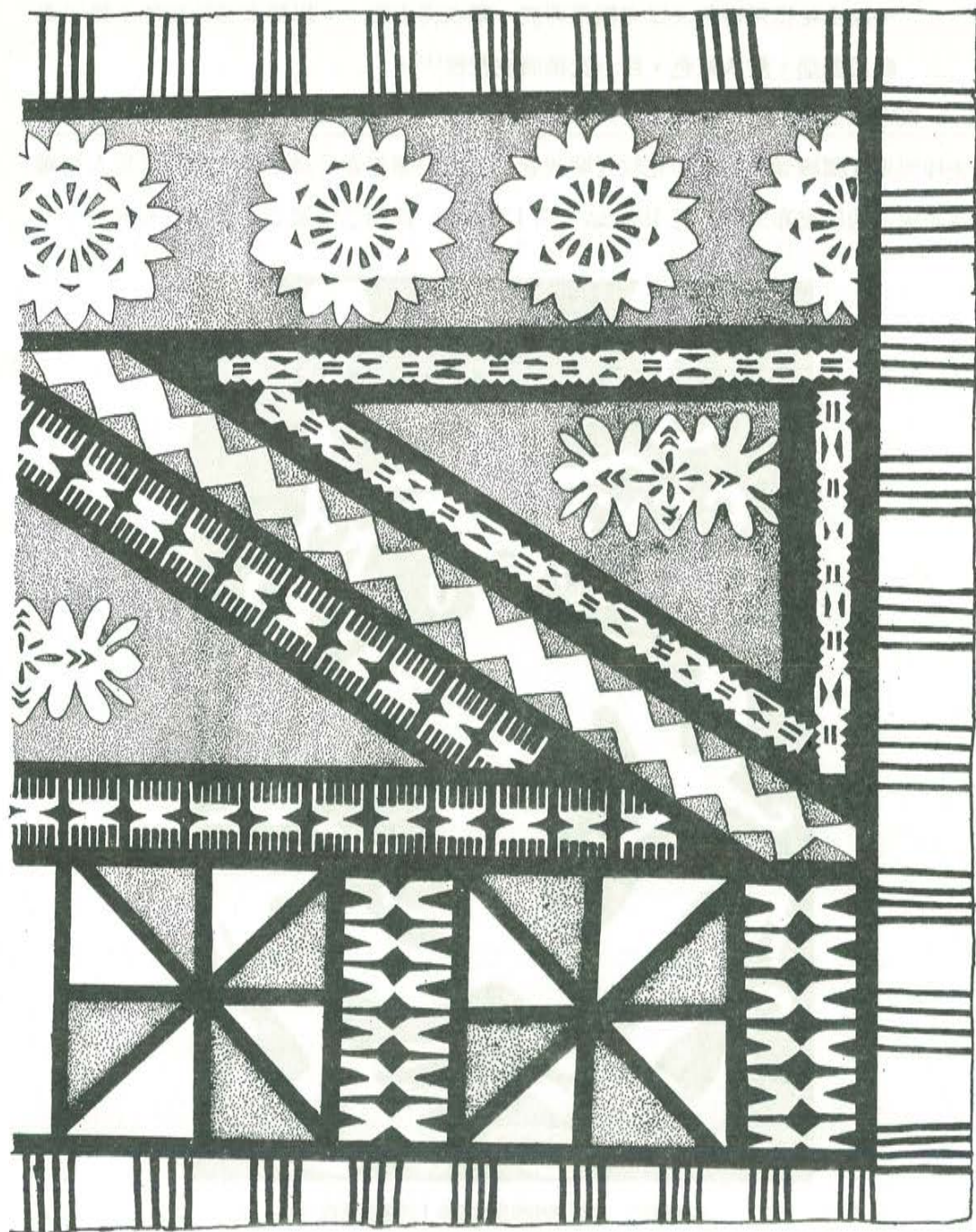
Fig. 1 Stencil designs used on tapa, Lau, Fiji.

又據 Hocart 氏的報告說：

鏤空印花，先煮紅色顏料，俟其變成膠汁狀和黑褐色，再混合燈烟和赭土。…

(1) Kennedy, 1934, p. 236.

(2) Thompson, 1940, pp. 196-197.



插圖二 本所收藏菲基的鏤空花模印的樹皮布
Fig. 2 Stencil pattern of bark-cloth, Fiji.

…鏤空花模用香蕉或露兜樹葉剪成，鋪在樹皮布上。以樹皮布紮成的小墊子先輕拍燈烟，浸入紅色，印上花模而成花紋⁽¹⁾。

又花紋的樣式是用直線來分開，這種若干條的直線叫做間架 (frames)。印花時先印間架 (圖版壹A) 再印花紋 (圖版壹B) 至於圖版壹C 為本所收藏菲基島人用鏤空花模印的樹皮布文飾，長 192 cm，濶 120 cm。插圖二為圖版壹C 圖全布的一半。



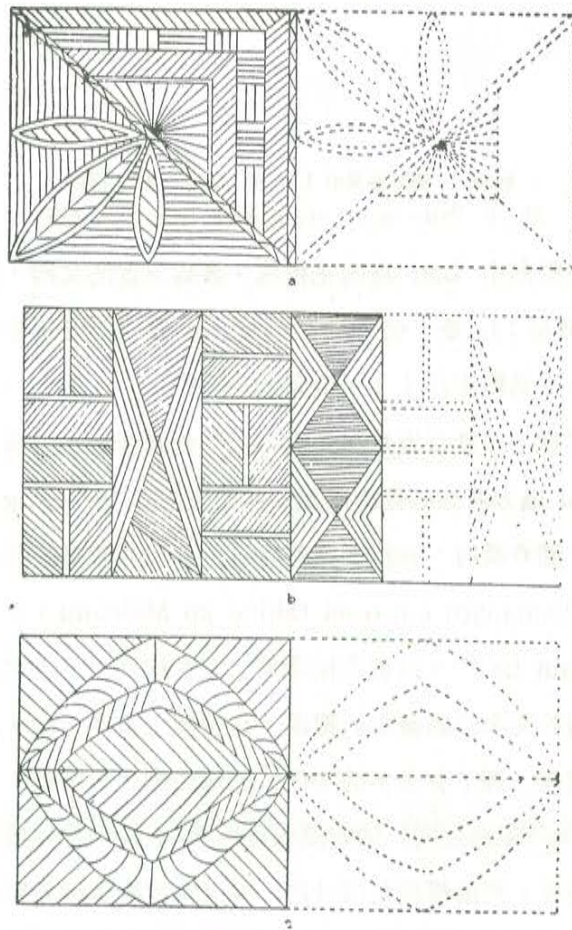
插圖三 婆羅洲的樹皮布短衣上的鏤空花紋

Fig. 3 Stencil pattern of bark-cloth jacket from the Upper-Bulungan, Kenya area, Kalamantan, Borneo. (After Kooijman, 1958.)

(1) Hocart, 1929, p. 132, pl. 4.

上述玻利尼西亞的鏤空花紋都為幾何圖形，但在今印度尼西亞婆羅洲有木製的鏤空花模板，其花紋如插圖三為寫實的人形⁽¹⁾。

(二)陽紋花模板 這種印刷樹皮布文飾的技術盛行於通加羣島，故又稱通加法。先以數張乾的香蕉葉或露兜樹及椰子樹葉以線紮平成一底板，板面以細繩或葉之中肋盤成花樣，用線縫固，則板面凸出成陽文花樣。文樣有幾何圖形，但多數是寫實圖形。如插圖四為菲基羣島中的 Lau 南島的花模板：a 圖以搓成的細繩，用露兜樹皮縫牢在以香蕉葉做成的底板上，長 50 cm，闊 23 cm；圖 b 與 c 兩圖均以椰子樹小葉

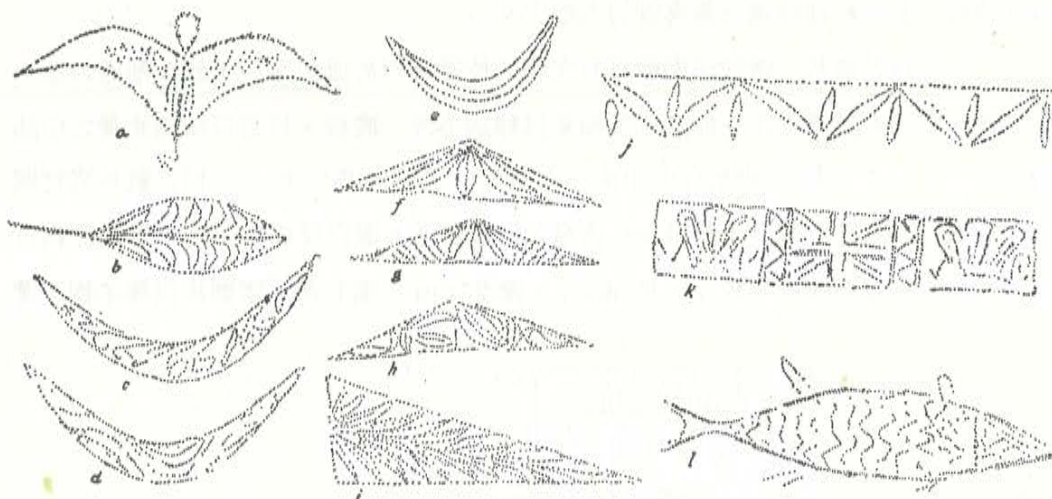


插圖四 菲基羣島 Lau 島的陽紋花模板

Fig. 4 Tablet designs used to make rubbing on tapa, Lau, Fiji.

(1) Kooijman, 1958, p. 358, pl. 10.

的中莖，用 *hibiscus* 的皮絲縫固在露兜樹葉做的底板上，長48 cm，闊24 cm⁽¹⁾。



插圖五 菲基羣島中 Lau 島，樹皮布上的花樣

Fig. 5 Patterns for appliqué on tapa, Lau, Fiji

插圖五亦為菲基羣島中 Lau 島的花模板，多為寫實的文樣，如 a 圖是蝙蝠；b 扇子；c, d, e 都是月亮；f, 是一種 *mbua* 樹葉；g, h, i 三者均未調查得其名稱，j 是 *manba* 樹葉，k, 名稱未詳；l, 為魚的花樣⁽²⁾。

菲基羣島的花模板，多數自通加羣島輸入的⁽³⁾如圖版貳A即為通加羣島 Tongatabu 島，Nukualofa 地方所產的椰樹葉做成的印刷蓆墊 (printing mats)，土名叫做 *kupesi*，長19英吋，闊6英吋。在這兩塊蓆墊面上，用葉莖盤縫花紋外，尚有文字字母為 Koe maka fakamanatu eni o sū tahine ko Meleami，其義為“這一立石，是紀念親愛女 Miriam 的”⁽⁴⁾。這種花模蓆墊上除花紋外，又有文字字母，可以說明樹皮布上的文飾，對於文字印刷發明的關係，在技術上根本相同，不過文樣先有寫實圖形，進而為幾何圖案，到了有文字的時候，就知印刷文字字母。又圖版貳B為 Futuna 島（菲基與薩馬亞羣島之間）的花模板或蓆墊。這一花模蓆墊分面底兩層：底層用四張露兜樹葉做成，葉的纖維是橫放的；面層是用幾張樹葉縱放做成的。每層多

(1) Thompson, 1940, p. 199.

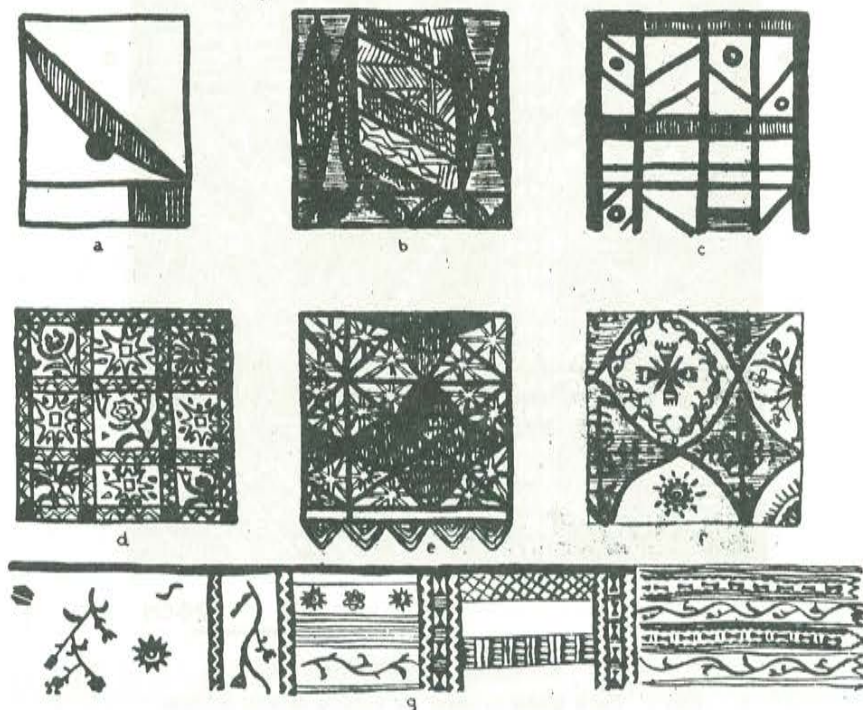
(2) Hocart, 1929, p. 135.

(3) Thompson, 1940, p. 198.

(4) Hunter, 1957, p. 39.

以扁繩緝邊。花紋縫做在面層上，主要花線是用椰子樹葉中莖做的，粗線是併用兩根中莖，細線只用一根即可。更細的是用 *fau* 樹內皮搓成的細線。且用這種細線將面底兩層樹葉，縫牢成爲一板。並在板的四面各做成一繩圈。使用時將花模板橫放在一凸出木板，普通在一翻身的船底上面，花紋向上，將扁繩穿入繩圈和木板往返數道，使花模緊綁在木板上⁽¹⁾。用樹皮布做成的拍墊，浸蘸顏色，塗拍陽文花紋，印刷在樹皮布上。

(三)雕花木板 據 Fison 氏說，菲基羣島的樹皮布文飾，從前是用木板雕刻陽文花紋印刷的⁽²⁾。但據 Burrows 氏言陽文花模板是本地的原始產物，陽文雕刻木板是歐洲雕刻工具輸入後才有的⁽³⁾。花模板與雕刻板究竟何者先有？作者手頭材料不多，目下尚不敢確言。現在菲基羣島與薩馬亞羣島之間的 *Uvea* 島或稱 *Wallis* 島，至今



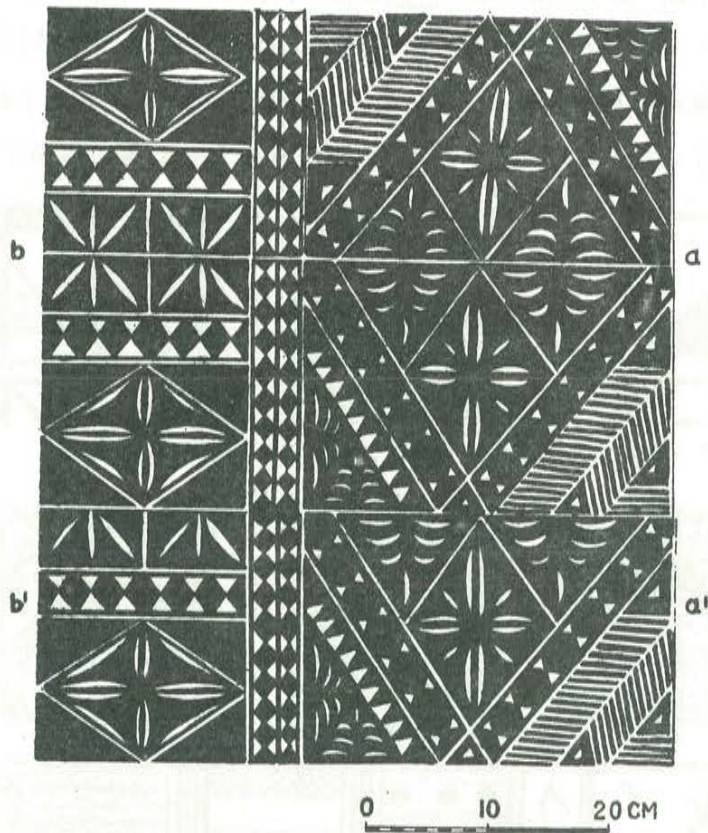
插圖六 烏維亞島的樹皮布文飾的花樣

Fig. 6 Motifs of bark-cloth decoration, Uvea.

- (1) Burrows, 1936, pp. 189-190.
 (2) Fison, 1904, p. 162; Thampson, 1940, p. 200.
 (3) Burrows, 1937, p. 132,

花模板與雕刻板並存，如插圖六所示：a, b, c 三圖除粗線，黑球，圓圈用手繪以外，餘均用花模板印刷的文樣；d, e, f 三圖都是雕刻板印刷的，圖中的界線及 f 的一部份花紋是手繪的，g 圖都是手繪的花紋⁽¹⁾。

薩摩亞島人至今亦用雕刻板印刷樹皮布文飾，如圖版叁 A 為印刷花紋的雕刻板；B 用印刷成的花紋，再加以手繪⁽²⁾。C 為本所藏的薩摩亞島雕刻板所印樹皮布標本，長190 cm，濶146 cm。如插圖七：a 為該標本花樣的一個單位，a' 為一單位的一半；



插圖七 本所收藏薩摩亞島雕刻板印刷的樹皮布

Fig. 7 Bark cloth printed by carved board, Samoa.

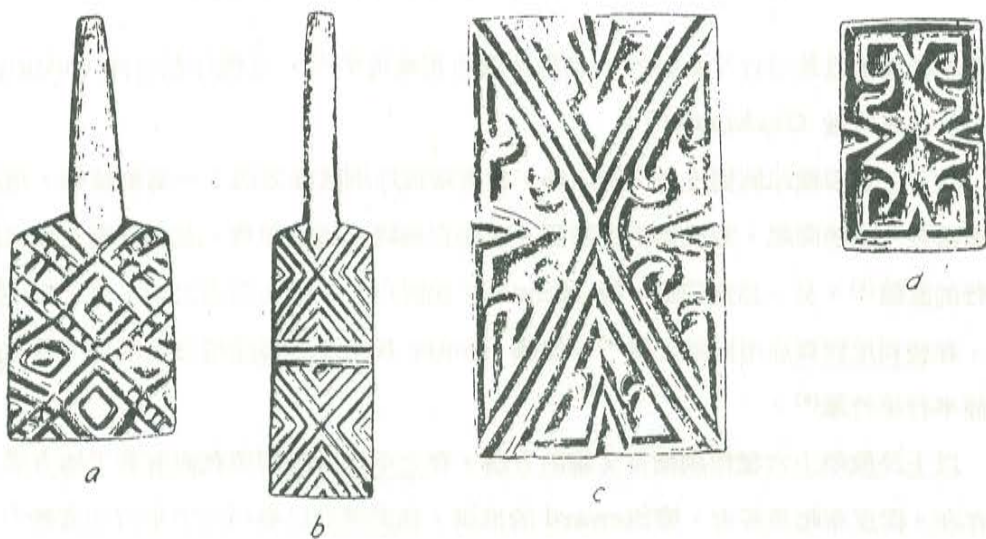
b 為另一花樣，b' 為其半個單位。全張樹皮布的文飾，先以 a 與 b 的雕刻板，印成赭色花紋後，再繪上黑色粗線。

(1) Burrows, 1937, p. 135.

(2) Rose, 1959, p. 161.

在印度尼西亞亦有用雕板印刷樹皮布文飾的記載，如 Veth 氏謂早在1850年，在今印尼婆羅洲西南 Matan 地區的 Pawan 和 Laur 兩河流域的土著，用雕板 (carved block) 印刷樹皮布上的花紋⁽¹⁾。

在南美洲製造樹皮布，以亞馬遜河上游的支流與玻利維亞東部的 Guapore, Mamore 及 Beni 諸河流域，最為發達。有許多部族如 Yuracare, Majo 等的樹皮布印有文飾⁽²⁾。如插圖八為 Yuracare 人的雕刻木板，c 圖為印樹皮布花紋的印板，a, b, d 為印人體面部花紋的木印⁽³⁾。圖版伍：A 為 Yucacare 族男人在舉行儀式時所穿的衣服，B 為 Moja 人所着樹皮布有文飾的衣服⁽⁴⁾。



插圖八 Yuracare 印第安人的木印

Fig. 8 Yuracare stamps: a, b, d, face stamps of wood;
c, wooden stamp for bark cloth.

(四)小花木印 印度尼西亞的樹皮布文飾，除手繪外，尚有用木印打小花紋，如插圖九為西里伯斯島人用黑檀木所刻成的小花木印，用以打印在樹皮布上⁽⁵⁾。在夏威夷

(1) Veth, 1854, I, p. 150; Kooijman, 1958, p. 358.

(2) Métraux, 1949, pp. 67-68.

(3) Métraux, 1948b, p. 498, pl. 47.

(4) Métraux, 1948a, pl. 40.

(5) Kennedy, 1934, pp. 235-236.

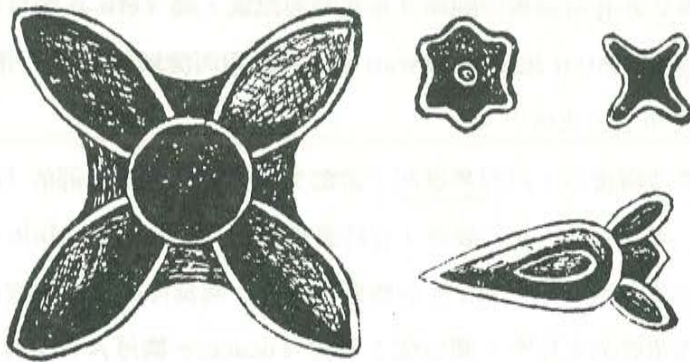


FIG. 1.

插圖九 西里伯斯的烏木印

Fig. 9 Ebony stamps from Celebes. (After Kennedy, 1943.)

夷這種花印普通是用竹片刻製的。使用甚廣而花樣很多⁽¹⁾，這種印花竹棒 (printing stick) 土名叫做 *Ohekapala*⁽²⁾。

除了上述四種印刷樹皮布文飾以外，尚有兩種印刷直線方法：一為滾條軸，用長二至四英尺長的圓棍，刻成等距的圓圈，或繞以細繩，塗上顏色，在樹皮布上滾印成平行的直線⁽³⁾。另一為劃線筆，據 Kennedy 氏說以竹子削成三尖之筆，用之劃平行線，在玻利尼西亞亦用同樣之筆⁽⁴⁾。但據 Hunter 氏謂夏威夷除用三尖筆外，還有劃六條平行線竹筆⁽⁵⁾。

以上民族學上六種印刷樹皮文飾的方法，在太平洋區直到現在尚有若干地方零星地存在。樹皮布起源甚古，據 Steward 的推測，在南美洲已發現三千年前的遺物⁽⁶⁾，則在亞洲的時代應該更早了！在華南和東南亞我們已找到許多新石器時代所製樹皮布的石打棒⁽⁷⁾，同時亦發現印刷樹皮布花紋的石或陶製的印模⁽⁸⁾，由此可證明東亞的印刷技術，在新石器時代早就存在了！這當然影響到後世中國印刷術的發明。

(1) Malo, 1951, p. 50, note 5.

(2) Hunter, 1957, pp. 32-33.

(3) Linton, 1926, p. 52.

(4) Kennedy, 1934, p. 235.

(5) Hunter, 1957, p. 33.

(6) Steward, 1959, p. 42.

(7) 凌純聲, 1962, pp. 195-212.

(8) Evans, 1928, p. 128, Beyer, 1948, p. 60.

二 斑文布爲印花的樹皮布

中國古代樹皮布的名稱，有楊布、答布、都布、實布、幪布等名，這許多名稱，都是從蠻夷語言音譯而來，又有樹皮布、楮皮布、穀皮布等名，都是樹皮布的漢名；至於斑布或稱斑文布，乃是有文飾的樹皮布。斑文布早在第三世紀已見於著錄，沈瑩的臨海水土志，其中有關樹皮布的記載，見太平御覽卷七八〇序東夷條所引云：

夷州在臨海東南，去郡二千里，土地無霜雪，草木不死。四面是山，衆山夷所居。……能作細布，亦作斑文布，刻畫其內，有文章以爲飾好也。

根據拙著古代閩越人與臺灣土著族一文的考證：三國時孫權在黃龍二年(230 A. D.)所征伐的夷州，即今之臺灣。沈瑩著的臨海水土志成書的年代，約在公元二六四至二八〇年之間，吳主孫皓在位之時⁽¹⁾。該時夷州已出產細布與斑文布兩種布，但水土志未能說明是何種布類。

至第七世紀初葉，隋征琉球，當時臺灣所產的樹皮布，頗能引起中土的人士的注意，杜寶大業拾遺錄（太平御覽卷八二〇引）曰：

大業七年(611 A. D.)十二月，朱寬征留仇國還，獲男女口千餘人，並雜物產與中國多不同，緝木皮爲布，甚細白，幅濶三尺二寸，亦有細斑布，幅濶一尺許。

唐張鷟朝野僉載亦云：

煬帝令朱寬征留仇（即流虬也）國還，獲男女口千餘人。並雜物產，與中國多不同，緝木皮爲布甚細白，幅二尺二、三寸，亦有細斑布，濶一尺許。

在第七世紀初的留仇國，經 Schlegel 氏在古琉球國考證一文證明其爲今日的臺灣，學者甚少異說。其所產木皮布甚細白，幅濶三尺二寸或二尺二、三寸，此即臨海水土志所謂之細布；又產細斑布，幅濶一尺許，乃水土志上所謂之斑文布。由此可見留仇國產木皮布兩種：一爲細白布，另一細斑布；亦即爲夷州的細布和斑文布。細白布或細布爲沒有文飾的樹皮布；細斑布或斑文布爲有文飾的樹皮布，臨海水土志謂‘刻畫其內，有文章以爲飾好’，即是在樹皮布上用刻板而印或繪畫花紋，作爲文飾之意。此

(1) 凌純聲，1951，pp. 3-6.

爲斑文布見於中國文獻中的最早的紀錄。

在中國大陸上斑文布的記載，可說始見於後漢書卷一一六南蠻西南夷列傳，槃瓠種的武陵蠻：

織績木皮，染以草實，好五色衣服，制裁皆有尾形。……衣裳斑蘭，語言侏離。……秦始皇使白起伐楚，略取蠻夷，始置黔中郡，漢興改爲武陵。歲令大人輸布一匹，小口三丈，是爲賁布。巴郡南郡蠻，……其民戶出幪布八丈二尺。

說文云：“幪，南郡蠻夷賁布，从巾家聲”。照許慎之說，賁幪是一物。上引後漢書所載，蠻夷之布，‘織績木皮，染以草實’，賁幪應爲木皮布，又‘好五色衣服，衣裳斑蘭’，所謂‘斑蘭’，可能是有文飾的斑文木皮布做的衣裳。

漢時的武陵蠻經唐而宋，猶未完全開化，至南宋朱輔，有溪蠻叢笑之作，記其奇風異俗，有云：

蠶事少，桑多柘，繭薄小，不可繰，可緝爲紬。或以五色間染布，爲僞名順水斑。又摸取銅鼓文，以蠟刻板印布，入靛缸漬染，名點蠟慢。

上文中所記的‘順水斑’，作者雖不能確知其意義，或前文有‘以五色間染布’一語，則順水斑或爲斑文布的一種。又點蠟慢，即在中國西南及東南亞的點臘印花布，西文作 batik。據 Beyer 氏的研究有云：“那是可能的，廣泛的東印度羣島的 batik 工藝，是有若干古代樹皮布製作的遺留，例如現存幾何文飾的 batik，是與樹皮布印文有的相似”(1)。所以宋代溪蠻的順水斑和點蠟慢，至少也保存古代樹皮印花技術的遺留。所謂‘刻板印布’，即前文所述的鏤空花模板的印法。

斑文布至唐代或簡稱斑布，在唐元和八年 (813A. D.) 刊行李吉甫的元和羣縣圖志載有斑布，如卷第三十江南道六夷州條：

夷州本徼外蠻夷之地，自漢至梁，陳，並屬牂牁郡。歷代特險，多不賓附。大業七年，置綏陽縣屬明陽郡。武德四年，改爲夷州。貞觀元年，廢；四年，於黔州都上縣後置。……貢賦：開元貢，斑布。

(1) Beyer, 1948, p. 61.

同卷江南道六南州條：

南州周屬雍州，戰國爲巴國界，秦爲巴郡之地，漢爲巴郡江州之境。其男女露頭徒跣，衣皆左衽。周閔帝拓定巴境，以江州置七州郡。武德二年，割渝州置，領六縣。又改爲夔州。四年，復爲南州。……貢賦云：開元貢，斑布。

同書卷三十三劔南道下榮州條：

榮州禹貢梁州之域，秦爲蜀郡地，在漢卽犍爲郡之南安縣也。李雄據蜀後，夷獠居之，所謂鐵山生獠也。開皇十三年，置大牢縣。武德元年，割資州大牢、威遠二縣，於公井鎮置榮州，取榮德山爲名也。……貢賦：開元貢，斑布六疋，利鐵；元和貢，斑布。

同書卷三十七嶺南道四富州條：

富州，禹貢荊州之域，漢平南越，置蒼梧郡。今州卽漢蒼梧郡之臨賀縣地也。梁武帝分臨賀郡置南靜郡。開皇中廢。武德五年，重置靜州。貞觀八年，改爲富州，因富川水爲名也。貢賦：開元貢，斑布，銀；元和貢；斑布五疋。

以上元和郡縣圖志所載出產斑布之地，有夷州在今貴州的石阡與綏陽兩縣境內，南州在今四川萬縣之西及綦江縣南之間，榮州爲今四川榮縣之地，富州在今廣西昭平縣境。可見在唐代出產斑布多在蠻夷境內，且夷州和南州在漢時爲黔中郡與南郡出賁布或幪布之地。漢時的榻布、答布、都布、幪布等樹皮布的蠻夷名稱，至唐多改用漢名，如元和郡縣圖志卷三〇江南道六漆州條：

漆州貢賦：開元貢茄子、楮皮布、紵布、黃蠟。

又同書卷二十六江南道二處州條：

處州貢賦：元和貢綿，紵布、麻布、樹皮布、小綾、紗、絹、縣紬。

由上可見樹皮布至隋唐時無文飾的樹皮布稱楮皮布或簡直稱樹皮布，有文飾的樹皮布稱細斑布或簡稱斑布。

至宋初，樂史所撰太平寰宇記，尙有斑布的記載，該書卷八十五劔南東道四榮州條：

風俗：夏人少，蠻獠多，男不巾櫛，女衣斑衣，姓名顛倒，不知禮法。土產：麩金、羌活、黃連、斑布（舊貢），有鹽井五十七。

同書卷八十八劔南東道七瀘州條：

風俗：地無桑麻，每歲畚田，刀耕火種。其夷獠則與漢不同，……着斑布，擊銅鼓。土產：大黃、杏仁、斑布、花竹簾、茶。

同書同卷昌州條：

土產：斑布、筒布、金(貢)，絹。

同書卷一二二江南西道二十南州條：

土產：象牙、犀角、斑布。

同書卷一六九嶺南道十三儋州條：

風俗：山海經曰，儋耳即離耳也……俗呼山嶺爲黎，人居其間，號曰生黎……績木皮爲布，尙文身，富豪文多，貧賤文少。

同書同卷瓊州條：

風俗：有夷人……號曰生黎、巢居深洞，績木皮爲布，以木棉爲毯。

又同書同卷萬安州條：

風俗：女人以五色布爲帽，以斑布爲裙似袋也，號曰都籠；以斑布爲衫，方五尺，常中心開孔，但容頭入，名之曰思便。

自唐元和八年(813) 元和郡縣圖志至宋太平興國(926-983) 刊行的太平寰宇記，在這一百七十年間，榮州與南州仍產斑布，與榮州鄰近的瀘州及昌州（在今四川的榮昌大足等縣）亦有斑布出產。在今海南島的瓊州與儋州均產木皮布，而在萬安州以斑布爲裙與衫。可見在第十世紀，海南島盛產木皮布，而以有文飾的木皮布的斑布爲裙衫。

上述爲中國文獻上所載自紀元初年至第十世紀末葉的斑文布，至於斑文布印製的技術，幸有臨海水土志所記有‘刻畫其內，有文章以爲飾好’，我們解釋就是在樹皮布上刻版而印或繪畫花紋，作爲文飾之意。迨南宋時湘西的溪蠻‘以蠟刻板印布’，是用鏤空花模板印布，名‘點臘慢’亦即是今之 batik, Beyer 認爲 batik 的幾何文飾，可能是樹皮布印文的遺留。直至今日中國的印花布還保存遠古樹皮布印刷的方法。這可說明中國的印刷術早已存在，所不同的是印花和印字之別而已。

三 木印爲雕板印刷的過渡

中國在先秦時代多用堅硬的金屬、玉石、陶泥及獸角雕鑄印璽，似未見有用木刻印的記載，但用木板雕刻花紋和文字印板的事實早已存在。如周秦時代磚瓦上的花紋和文字，是雕刻在木框或木板模印而成的。文獻上記載木印則較爲後起，如後漢書儀禮志有云：

仲夏之月，以桃印長六寸，方三寸，
五色書文如法，以施門戶。

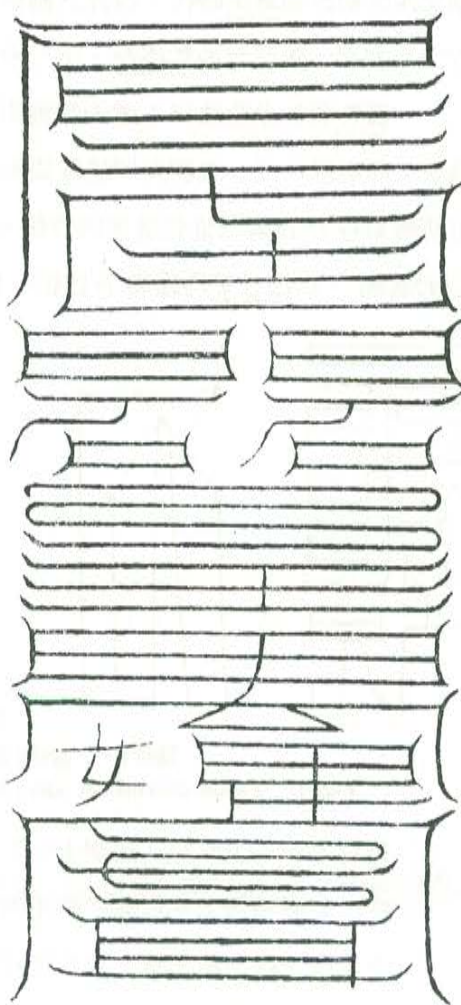
上錄的桃印，雖稱爲印而不刻文，僅以五色寫字，道家用作符錄，掛在門戶上用以避邪。

在第四世紀初葉，抱朴子內篇卷一七載有入山佩帶符如插圖十所示，並云：

抱朴子曰：此符是老君所載百鬼及蛇虺虎狼神印也。以棗心木方二寸刻之再拜而帶之，甚有神效，(疑有缺文)仙人陳安世符矣。

上文雖有‘以棗心木二寸刻之，再拜而帶之’然未明言印符。又同書同卷又云：

或問爲道者，多在山林，山林多虎狼之害也，何以避之。抱朴子曰：古之人入山者，皆佩黃神越章之印。其廣四寸，其字一百二十，以封泥著所住之四方各百步，則虎狼不敢近其內也。行見新虎跡，以印順印之，虎即去；以印逆印之，虎即還。帶此印以行山林，亦不畏虎狼也。不但只辟虎



插圖十 抱朴子載以棗心木方二寸刻之入山佩帶符

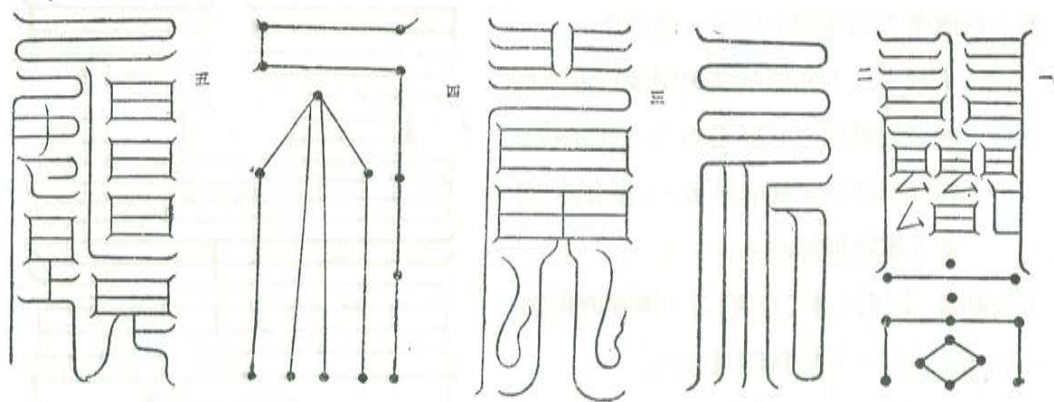
Fig. 10 Taoist charm seal engraved on a piece of the jujube tree.

狼，若有山川社稷血食惡神，能作禍福者，以印封泥，斷其道路，則不復能神矣。昔石頭水有大鼃，常在一深潭中，人因名此潭爲鼃潭，此物能作鬼魅，行病於人。吳有道士戴昞者，偶視之，以越章封泥數百封，乘舟以此封泥遍擲潭中，良久，有大鼃徑長丈餘，浮出不敢動，乃格殺之，而病者並愈也。又有小鼃出，羅列死於渚上甚多。

上述黃神越章之印，其廣四寸，刻有一百二十字，用以印封泥，可見在第三世紀後半期至四世紀之初葛洪時代，封泥之制猶存。此印至八世紀初似尙通行，唐，徐堅(659-729) 在 725 年刊行的初學記，第二十六卷服食部，印三，刻棗下注曰：

黃君刺使虎豹法曰：道士當刻棗心作印，方四寸也。

越章之印用以印泥，又前文所述以棗木方寸刻之入山佩帶符，可說是佩印，此二印又可稱爲刻符，在第三世紀道家的符錄，除上述刻成木印外，尙有‘以丹書桃板上’或‘以丹書絹’，如抱朴子內篇卷子七有云：



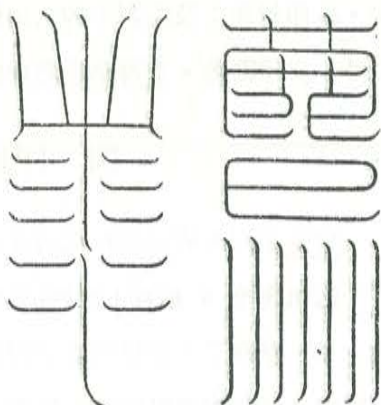
插圖十一 抱朴子載以丹書桃板上的老君入山符

Fig. 11 Taoist charms for entering mountain drawn in red on peach board.

抱朴子曰：上五符（插圖十一），皆老君入山符也。以丹書桃板上，大書其文字，令彌滿板上。以著門戶上及四方四隅，及所道側、要處、去所、住處。五十步內，辟山精鬼魅。戶內梁柱，皆可施安。凡人居山林，及暫入山皆可用，即衆物不敢害也。三符以相連著一板上，意謂爾非葛氏（末句疑附注之語，誤入正文）。

又同書同卷云：

抱朴子曰：此是仙人陳世安所授，入山避虎狼符，以丹書絹二符（插圖十二），各異之。常帶著所住之處各四枚，移涉當拔收之以去，大神秘也。開山符以千歲藁名山之門開寶書古文金玉，皆見秘之。右一法如此，大同小異，



插圖十二 抱朴子載以丹書絹的
入山避虎狼符

Fig. 12 Taoist charms for avoiding tiger and wolf in the mountain drawn in red on the silk.

由上錄可見道家製符有刻木印，書桃板，書於絹三法，在符上有蓋印文的，同書同卷：

山中卒逢虎，便作三五禁，虎亦即却去，三五禁法：……或用七星虎步及玉神符，八威五勝符，李耳太平符，中黃華蓋印文。……

上引文中的‘蓋印文’，或即在上文所述的符錄上蓋印文，這種符或書於絹上。Carter 和 Goodrich 兩氏以為世界第一個雕板印刷者或是製符錄的道家⁽¹⁾。證之以本節所錄材料，其言甚為正確。

柏希和又在隋書卷三十五經籍志引用下文：

又以木為印，刻星辰日月於其上，吸氣執之印，疾病多有愈者。

柏氏認為絕對可能，在當時（約西元 600 年）道家所刻之印係反字陽文，且已印在紙上⁽²⁾。

在文獻上記載，最大的木印，隋書卷十一禮儀志第六⁽³⁾：

又有督攝萬機印一紐，以木為之，長一尺二寸，廣二寸五分，背上為鼻鈕，鈕長九寸，厚一寸，廣七分。腹下隱起篆書為督攝萬機凡四字。此印常在內，唯以印籍縫，用則左右郎中度支尚書奏取，印訖輸內。

如此大的木印，且印在紙上，可說是雕板印刷了。

以上為文獻所載，在第三世紀末，道家的黃神越章之印，廣四寸，刻有一百二十

(1) Goodrich, 1955, p. 18.

(2) Pelliot, 1953, p. 17.

(3) 屈萬里, 1953, p. 18.

字，以印封泥；及插圖十的入山佩帶印又第六世紀中葉，北齊有督攝萬機印，長一尺二寸，以印籍縫。李書華氏認為這些大的木印，是印章與雕板印刷的過渡⁽¹⁾。

四 印刷術發明的時間與地域

中國印刷術究於何時何地發明，中外學者根據中國文獻上的記載，尙在爭辯不已，迄無定論。事實上印刷的技術，在新石器時代與印紋陶器同時的印刷樹皮布花紋，早已存在了！近世學者所討論的印刷發明；是雕板印書，文獻記載究始於何時的問題而已。茲據文獻所載，依時代先後分述之。

(一) 玄奘印施普賢像 (西元645-664)

後唐馮贇雲仙散錄：

僧園逸錄曰：玄奘 (599-664) 以同鋒紙印普賢像，施於四衆，每歲五馱無餘。雲仙散錄中外學者有的認為是偽書⁽²⁾，但向達唐代刊書考以為佛印之作，傳播已久，雲仙散錄所記，不無可信⁽³⁾。鄧嗣禹以為印施普賢像，當在西元六四五至六六四之間⁽⁴⁾。李書華亦以為義淨南海寄歸內法傳有‘印絹紙’之記載。玄奘圓寂之年，不過在義淨寄歸該傳的二十八年以前，然則玄奘印施佛像，自極可能⁽⁵⁾。

(二) 義淨記載中的印絹紙 (西元692)

唐義淨 (634-713) 南海寄歸內法傳：

造泥制底及拓模泥像，或印絹紙，隨處供養，或積爲聚以馱裹之，卽成佛塔，或置空野，任其銷散，西方法俗莫不以此爲業。

南海寄歸內法傳乃義淨於武后天授三年 (692) 寄回中國。所謂‘造泥制底’，卽以泥製成模底；所謂‘拓模泥像’卽以泥置模中壓成佛像。至於‘印絹紙’，乃是把佛像印於絹上或印於紙上。

在一九二五年藤田豐八以為‘印絹紙’是印度古佛像的印刷，他說：

(1) 李書華，1958, p. 89.

(2) Pelliot, 1953, pp. 46-47.

(3) 向達，1928, pp. 1-19.

(4) 鄧嗣禹，1934, Vol. 2, No. 11.

(5) 李書華，1958, p. 133.

由此條可知當時印度佛像印刷之盛，而中國印刷之最古者亦為佛像或陀羅尼，因而可知佛像之印刷，並非始自中國，中國乃由印度傳去，然中國却集其大成⁽¹⁾。

在一九二六年桑原隲藏反對藤田的說法，不相信中國的印刷是傳自印度，他指出：

印度古來曾有紡織品印花紋 (Printed textiles)，不過此中並找不出印刷之佛像；而且一直到許久以後，在印度迄無印刷之形跡，所以沒有理由相信中國的印刷傳自印度。

向達在唐代刊書考中，以為義淨的記載是佛像印於絹紙上最早的可靠記錄。柏希和亦認為是最早的第一個記錄。柏氏以為西元七世紀後半期印度早於數百年前已知有絹帛，但唐時印度本土似尚無‘紙’字，唐時僅中亞的梵文與中梵文混合術語中有‘紙’字，如唐禮言梵語雜名：紙，‘迦迦里’ *kakari*；義淨梵語千字文：*kakali* ‘迦迦里’，紙⁽³⁾因此柏氏頗相信印度印佛像於絹紙的方法，乃由東亞傳去⁽⁴⁾。

義淨於唐高宗咸亨二年（西元671）由番禺乘船出國；由西元 673—685 年留居印度；嗣往蘇門達拉之三佛齊 (Palembang)；西元 689 年回廣州四個月，後返蘇門達拉；武后證聖元年（西元695），由海路回國；出國有二十四年之久。南海寄歸內法傳乃義淨在蘇門達拉時寄回中國。或印絹紙可能是在蘇門達拉，因該地在西元七世紀末葉，印紋陶器與樹皮布上印刷花紋已有這兩種文化，雕板或陶模而成的佛像，印於絹紙。至於柏氏所指出的‘紙’即名 *kakari* 或 *kakali*，作者已證明為樹皮布紙，即以樹皮布用作為紙，印尼羣島人至今猶然⁽⁵⁾。

除上述用雕板或陶印印刷佛像外，樹皮布上的花紋尚有用鏤空 (stencil) 印法，在中國的燉煌及吐魯番地方已發現鏤空印法的佛像，這種佛像有的印在紙上，有的印在磁上，還有印在壁上的⁽⁶⁾。又柏希和曾在新疆的庫車獲得小形雕印佛像的方木板一

(1) 藤田豐八，1925, p. 473.

(2) 桑原隲藏，1926, p. 126.

(3) Bagchi, 1929, pp. 60, 154.

(4) Pelliot, 1953, pp. 17-18.

(5) 凌純聲，1961, p. 17.

(6) Carter, 1955, p. 56.

塊，由其周圍的其他物品推知此木板之年代，不能晚於西元八世紀。

(三) 日本百萬塔陀羅尼刊本：

日本今傳古刻本，有百萬塔陀羅尼經卷若干。百萬塔之造，經始於天平寶字八年（唐代宗廣德二年，西元 764 年）。每塔露盤之下，各置印本陀羅尼經一卷。雖其版為銅為木為石為磁，東西學者，尚無定論；然其為西元 764-770 年間之印本，則無疑問⁽¹⁾。陀羅尼經印刷於黃紙與穀紙⁽²⁾，所謂穀紙可能即為樹皮布紙。

(四) 白氏長慶集序（西元 824）

唐元禎（字微之西元 779-831）為白居易（字樂天 772-846）長慶集作序有云：

然而二十年間，禁省觀寺郵候牆壁之上無不書；王公妾婦牛童馬走之口無不道。至於繕寫模勒街賣於市井，或持之交酒茗，處處皆是。

元禎在‘處處皆是’之下，又自加附註如下：

揚越間多作書模勒樂天及余雜詩，賣於市肆之中也。

這篇白氏長慶集序作於唐穆宗長樂四年，西元 824 年。

(五) 唐馮宿奏准禁印曆日版（西元 835）

冊府元龜卷一六〇：

〔唐文宗太和〕九年（西元 835）十二月丁丑，東川節度使馮宿（767-837）奏准敕禁斷印曆日版。劍南兩川及淮南道，皆以版印曆日鬻於市；每歲司天臺未奏頒下新曆，其印曆已滿天下，有乖敬授之道；故命禁之。

上述馮宿奏文一段，亦收入於欽定全唐文，題為馮宿禁版印時憲書奏。

(六) 唐紇千泉雕印劉弘傳（西元 847-849）

唐范摭雲溪友議：

紇千尚書，苦求龍虎之丹十五餘稔，及鎮江右，乃大延方術之士作劉弘傳，雕印數千本，以寄中朝及四海精心燒鍊之者。

桑原隲藏以為紇千泉雕印劉弘傳約在西元 847 與 848 之間⁽³⁾。李書華則認為雕印的期

(1) 屈萬里，1953，p. 27.

(2) 李書華，1958，p. 137.

(3) 桑原隲藏，1926，pp. 112-132.

間，是在847-849年之間⁽¹⁾。

(七)唐司空圖化莫雕刻律疏 (西元871-879)

唐司空表聖文集又名鳴集卷九：

爲東都敬愛寺講律僧惠確化莫雕刻律疏：……自洛城岡遇，時交乃焚，印本漸虞散失，欲更雕鏤，惠確無愧專精，頗嘗講授，遠欽信士，擔結良緣，所希龜鏡屯□，津梁靡絕，再定不刊之典，永資善誘之方，必期字字鏤銘，種慧牙而不竭，生生親看，遇勝會而同聞，敢期福報之微，願允標題之請，謹疏。注稱：莫募通，印本八百張。

據向達唐代刊書考考證司空圖募化雕刻一文的年代，是在咸通末年及乾符六年之間，約在西元871-879年。

(八)唐柳吡家訓序中印板書 (西元883)

宋葉寘愛日齋叢鈔引柳氏家訓序：

中和三年(西元883)癸卯夏，鸞輿在蜀之三年也。余爲中書舍人，旬休閱書於重城之東南；其書多陰陽雜說占夢相宅九宮五緯之流，又有字書小學，率雕板印紙，浸染不可盡曉。

柳玘記載唐末益州，印刷書類最多，可知當時雕板印書，在四川已頗盛行矣。

由上述文獻上的記載，玄奘在七世紀中葉曾印普賢像，至七世紀末義淨有‘印絹紙’的記載，柏希和在新疆獲得八世紀雕印佛像的原木板。由此種種，可以推知西元七世紀中國已版印佛像。迨八世紀下半期日本有百萬塔陀羅尼的刊印。這種印刷方法，應係由中國輸入日本，又可推知西元八世紀上半期中國已有印刷術。所以李書華氏照上列的推斷說：“中國印刷術的發明，大概在西元八世紀初年”⁽²⁾。李氏根據文獻的記載而作的結論，可說是正確的。但廣義的印刷術的事實，中國在遠古時代早已發明矣。

至於中國印刷術發明的地域，自七世紀中葉至九世紀末記載雕板印書的地方在中國境內者，有揚越，劍南兩川，淮南，江右，洛陽及益州。唐代之揚越，應爲揚州與

(1) 李書華，1962, p. 21.

(2) 李書華，1958b, p. 182.

越州，即今江浙一帶；劍南兩川即劍南西川道，約當今四川西部，劍南東川道為今四川東部；淮南道約當今安徽江蘇兩省長江以北之地；江右即唐時之江南西道，簡稱江西，相當於今之江西至湖南一帶。洛陽唐為東都，益州為成都。唐代建都長安，而當時雕板印書，北方除洛陽外，未記載其他地區；長江與淮河流域則盛行於浙江，江蘇，安徽，江西，湖南，四川等省。所印書刊為雜詩、日曆、陰陽雜說、占夢相宅、九宮五緯、字書小學等，而不先印經史子集，這一現象與中國傳統不合，在隋唐時代中國文化北盛於南，而有關文化的印刷術反南盛於北。欲解釋此一事實，我們不得不承認印刷術的發展是與樹皮布及印紋陶兩種文化，皆有密切關係的。

DECORATIVE PRINTS ON BARK CLOTH AND THE INVENTION OF PRINTING

(Abridgement)

In the spring of 1961, I published in No. 11, Bulletin of the Institute of Ethnology, Academia Sinica, an article entitled "Bark Cloth Culture and the Invention of Paper-making in Ancient China", in the postscript of which, I stated: "I now advance an additional theory, i. e., the bark cloth culture of ancient China had not only influenced the paper-making skill, but it had also had some indirect effects on the art of printing, another of the four great inventions of China. Actually, the majority of both Chinese and foreign students of the history of Chinese printing have placed too much emphasis on block-printing. Paper was primarily used for writing, but it was also used for painting. The *heh-ti* 赫蹏 document described in the History of the Han Dynasty was nothing but some writing on a sort of cloth paper, while the streaked cloth of Man 蠻 and I 夷 tribes in the Han period may have been, in every possibility, certain block-printed cloth paper, which had set a pattern for the printed cloth of later ages. According to my research and examination, the ancient wood-block printing of China had appeared to the world earlier than the printing of books; essentially, the former was concerned with the printing of figures or designs; while the latter with the printing of words, but there was no difference between them so far as the basic printing techniques were concerned. Unfortunately, due to the limited time available and the length of the present article, it is impossible for me to make any further discussion of this point. But I will discuss it thoroughly in my paper to be written in the very near future on "Decorative Prints on Bark Cloth and the Invention of Printing".

The above postscript is now quoted to serve as the preface to this article. Besides, in my research of the printing of designs on bark cloth, I discovered that the stamping skill of decorated pottery also had some bearing on the invention of printing. For this reason, I entitled my study "Prints and Inscriptions on Bark Cloth and Pottery and the Invention of Printing", which consists of eight sections; namely, (1) Printed Designs and Patterns on Bark Cloth; (2) *Pan-wen-pu* 斑文布—Bark Cloth with Printed Decorations; (3) Decorated Pottery of China and Southeast Asia; (4) Use of the Pottery printers (5) Seals Used for Printing Wood, Cloth, Pottery and Clay; (6) Designs and Inscriptions Molded on Brick and Tile; (7) Wooden Seals—the Transition from the Stamped Seal to the True Block Printing; and (8) Date and Area of the Art of Printing.

However, due to the length of the monograph and the limited space available in this bulletin, the original manuscript was rearranged for publication under two separate titles. The portion published herein under the present title contains only four of the original eight sections, i. e. Sections (1) (2) (7) and (8). The remaining four sections will be published in the next issue of this periodical under the title of "Designs and Inscriptions on Decorated Pottery and the Invention of Printing".

PRINTED DESIGNS AND PATTERNS ON BARK CLOTH

The bark cloth produced in the Pacific Area was of two types: Plain bark cloth and decorated bark cloth. The former was generally used for making ordinary clothes and quilts, and the latter for making formal garments for ceremonial occasions (Kennedy, 1934: 236).

The decorative designs on bark cloth were executed by means of painting and printing; sometimes, a printing process was followed by painting. There were altogether six different methods of producing designs or figures on bark cloth: Stencil design, tablet design, carved board, small stamp, wooden cylinder, and bamboo liner.

(1) Stencil design—This method was widely used in the Fiji Islands of West Polynesia. A stencil was usually made by cutting the desired design in banana or pandanus *ordoratissimus* leaves. When it was laid on the surface of the bark cloth and ink or color was applied, this design was then produced on the bark cloth. Fig. 1 shows some of the stencil designs used on tapa on Lau, Fiji (Thompson, 1940: 196-197), and Fig. 2 is a piece of stencilled bark cloth kept in this Institute's collection. In addition, Plate I illustrates the stencilling processes: Printing the frames first and then the designs (Hocart, 1929: p. 132, pl. 4). The majority of stencilled decorations on the Polynesian bark cloth were geometric designs or figures. At present, wooden stencils can still be found in Borneo, but mainly with realistic human figures (Fig. 3, Kooijman, 1958, p. 358, pl. 10).

(2) Tablet design—Printing tablet or mat with designs in cameo: This method was so popular in the Tonga Archipelago that it was also known as the Tongan Method. The printing mat or tablet generally consisted of a base made of dry leaves of banana, or cocoa-nut palm, etc. and a surface with designs in cameo made with slender ropes or midribs of leaves and sewn on the base with thread. These designs were reproduced on the bark cloth in whatever color applied. The usual designs included geometric patterns (Fig. 4, Thompson, 1940: 199) and, for the large part, realistic figures (Fig. 5, Hocart, 1929: 135). Most of the Fijian tablet designs were introduced from Tonga (Thompson, 1940: 198). One printing mat discovered at Nukualofa, Tonga consisted of some characters in addition to the decorative designs (Plate II: A, Hunter, 1957: 39). This indicates the close relationship between the techniques of decorating bark cloth and the basic principles of the printing

art. Plate II: B displays some printing mats used on Tongatabu (Burrows, 1936: 189-190).

(3) Engraved board—Fison (1901: 162) stated that the Fijian bark cloth was formerly printed with wooden boards with designs in relief. But Burrows (1937: 132) believed that the printing mat was originated locally and the engraved board came into being after the import of carving tools from Europe. This device was similar to the printing tablet or mat described above and was widely used in the Fiji Islands in printing bark cloth. In many cases, designs impressed from the engraved blocks were completed by some freehand painting. Such printing blocks were formerly employed widely in Borneo (Veth, 1854: 150) and are now still in use on the Uvea (Fig. 6, Burrows, 1937: 135) and Samoa Islands (Fig. 7; Plate III, Rose, 1959: 161).

In South America, bark cloth manufacture flourished in the areas of Upper Amazon and along the rivers of East Bolivia. Bark cloths were made with printed designs among many tribes, such as the Yuracare, Majo, etc. (Metraux, 1949: 67-68). Fig. 8c provides a sample of the carved plates used by the Yuracare in marking bark cloth with designs (Metraux, 1948b: 498). Plate IV: A shows the men's dress for ceremonial occasions and B exhibits the Majo's clothes made with bark cloth with printed designs (Metraux, 1948a, pl. 40).

(4) Wooden stamp—Small wooden stamps were used in Celebes (Fig. 9, Kennedy, 1934: 235-236) to adorn bark cloth in addition to painting by hand. In Hawaii, similar printing stamps made with bamboo (Malo, 1951: 50) were also widely used and known as the 'printing stick' (Hunter, 1957: 32-33).

(5) Wooden cylinder—This type of tool was usually made of a piece of wood in the shape of a roller from two to four feet long with its surface containing designs of equi-distant encircling parallel lines (Linton, 1926: 52). It was generally applied for imprinting straight parallel lines on bark cloth.

(6) Bamboo liner—This was a type of pen, made of bamboo, usually with three points (Kennedy, 1934: 235), sometimes with six (Hunter, 1957: 33), and was used for drawing parallel lines on bark cloth.

At present, the six bark-cloth printing methods described above still exist fragmentarily at some places of the Pacific Area. Based upon Steward (1959: 195), the bark cloth culture of South America dates from as early as 3,000 years ago, and naturally, its parallel in Asia should have been originated much earlier. The discoveries in South China and Southeast Asia of the Neolithic stone bark cloth beaters (Ling, 1962: 195-212) as well as stone and pottery bark cloth printing blocks and tablets attest to the existence of the printing skill in East Asia during the Neolithic Period (Evans, 1928: 128; Beyer, 1948: 60). It may also be concluded that this early printing skill had much bearing on the later Chinese invention of the art of printing.

PAN WEN PU-BARK CLOTH WITH PRINTED DECORATIONS

In accordance with Chinese historical records and other documents, bark cloth was known in ancient China as *t'a-pu* 楊布, *ta-pu* 答布, *tu-pu* 都布, *tsung-pu* 簪布, etc. (names originated from various barbarian tribes), and bark cloth, *chu-pu* 楮布, *kuo-pu* 穀布, etc. (Chinese names). *Pan pu* 斑布 or *pan wen pu* 斑文布 (cloth with mottled or streaked markings) was no other than a kind of bark cloth with printed or painted designs.

Extracted below is the earliest record of *pan wen pu* which is found in the *Lin hai sui tu chih* 臨海水土志 (The Topography of Lin hai), written by Shen Ying 沈瑩 in the 3rd century: "Yi chou 夷州 (Taiwan)...fine cloth and also *pan wen pu* were produced, the latter decorated with printed or painted designs".

Again, evidence is found in the *Ta yeh shih yi lu* 大業拾遺錄 (Some Selected Collections of the History of the Sui Dynasty), written by Tu Pao 杜寶 in the 7th century, that 'the people of I-chou...wove bark into cloth, quite fine and white, each strip measuring 3 feet and 2 inches in breadth; there was also fine mottled cloth with a breadth of a little more than one foot' (Ling, 1961: 35).

Of the two types of ancient bark cloth of Taiwan as described above, the fine and white cloth was just plain bark cloth and the fine mottled cloth a kind of bark cloth with decorative designs.

The first record regarding the production of *pan wen pu* on the Chinese Mainland is carried in the *Hou han shu* 後漢書 (The Official History of the Later Han Dynasty). This record describes that the Man and Yi (two barbarious tribes) made cloth with bark, dyed it with grass seeds, and made 'variegated' garments with it. In all probability, the 'variegated garments' represented clothes made with some sort of bark cloth garnished with colorful designs and patterns.

Later, in the period of Southern Sung, Chu Fu, 朱輔 in his *Hsi man tsung hsiao* 溪蠻叢笑 (Entertaining Accounts of his Adventures among the Western Hunan Aborigines) stated that the batik and stencilling methods were generally used by the Western Hunan aborigines in decorating their bark cloth.

Based upon records in the *Yuan ho chun hsien t'u chih* 元和郡縣圖志 (Illustrated Catalogue of the Prefectures and Districts of the Tang Dynasty), completed by Li, Chi-fu 李吉甫 in the Tang Dynasty (813 A. D.), *pan pu* was mostly produced in South and Southwest China during the Sui-Tang Period; the plain bark cloth was then generally called *chu pu*, or simply 'bark cloth', while that with decorative designs called fine *pan pu*, or simply *pan pu*.

Records of the production of *pan pu* are even contained in the *Tai ping huan yu chi* 太平寰宇記 (A General Geography of China, compiled by order of Emperor Tai Tsung) which was compiled as late as the early Sung Dynasty (926-983). As recorded, the bark cloth industry was still flourishing in South China and on the Hainan Island

during the 10th century and printed bark cloth was widely used to make skirts as well as garments.

The foregoing provides us with a general picture of the production of *pan wen pu* in old China during the first ten centuries. As discussed previously, printing, painting, stencilling and batik processes were largely employed in decorating bark cloth. Beyer (1948: 61) said: "...The geometric *batik* designs are very similar to those seen on printed bark cloths". Thus, it can now be concluded that the art of printing came into being, when the ancient Chinese bark cloth printing skills were developed to adopt characters or inscriptions in addition to the figurative designs.

WOODEN SEALS—THE TRANSITION FROM THE SEAL TO BLOCK-PRINTING

Seals and chops were generally engraved on hard materials, such as metal, jade, animal horns, and pottery-clay, in ancient China before the Chin Dynasty; but no records of stamps carved with wood being in use during that period have yet been found. However, it is a doubtless fact that wooden blocks with designs and inscriptions for printing tiles and bricks had already been in existence prior to the Chin Time.

The first record of wooden seal is contained in the *Hou han shu* 15/5a:

In the month of mid summer, they placed at the gates and doors seals of peach wood, six inches in length and three in breadth, inscribed in colors with the words, 'Let the law be obeyed'.

In fact, the inscriptions on the above quoted seals were not engraved on them, but were written on them with five different colors and used by the Taoists as charms to be hung on the doors to expel evils.

An account is found in the *Pao pu tsu nei p'ien* 抱朴子內篇 17, a work written by a Taoist writer, Ko Hung 葛洪, in the early years of the fourth century, of a Taoist charm seal (Fig. 10) engraved on a piece of jujube wood, 2 inches square, to be worn against evil spirits and monsters when the ancients travelled in the mountainous areas.

Also found in the same book ch. 4, or sect. 17 is the following passage:

The ancients whenever they entered the mountains wore a *yueh-chang* 越章 seal of the Yellow God (Hwang-ti), four inches in breadth and bearing 120 characters, with which they made impressions in the clay, in consequence of which, wherever they halted, neither tigers nor wolves ventured to approach on any side nearer than a hundred paces. If while travelling they saw a fresh print and impressed the seal there in the same direction in which the beast moved, they made the tiger proceed, and if they did so in the reverse direction, they made it return; therefore, whoever had such a seal at his belt might travel through mountains and forests without any fear of tigers or wolves. But that seal kept off not only

tigers and wolves. Gods of mountains and rivers or in temples of the earth, who received bloody sacrifices, and bad spirits, the authors of happiness or unhappiness, if their road was obstructed by means of such an impression in the clay, could manifest their spiritual power *shen* 神 no longer. In former days there was in the Rock River a large tortoise, which always abode in a deep abyss which people called the abyss of the tortoise; this beast visited men like a spectre, and spread disease among them. But a Taoist doctor in Wu 吳, named Tai Ping 戴平, who happened to witness this fact, made some hundreds of *yueh-chang* impressions in clay, went aboard a ship, and strewed that clay broadcast into the abyss; on which after a while a huge tortoise rose to the surface, more than ten feet in diameter; it did not venture to move, and when it was slain, the sick all recovered. And at the same time, small tortoises appeared on the surface, to die successively in very great number on the shore (Groot, 1910: V. 6, 1049).

These large charm seals, large enough to contain a hundred and twenty characters, were used not to print with ink, but to make impressions on clay. The Taoist charms as shown in Fig. 11 were drawn with red color on boards of peachwood and those shown by Fig. 12 were painted on silk. Based upon *Pao pu tzu*, many of the charms and amulets had to be stamped with seals for "a charm without a seal is like an army without a commander" (a favorite Taoist saying, De Groot, VI: 1048; Carter and Goodrich, 1955: 18). In light of the above, Goodrich reasoned: "It can be stated with confidence that the world's first block printers were the Taoist charm makers of China".

Pelliot (1953: 17), draws attention to an interesting description of rites of Taoism in the dynastic history of Sui (590-618), the *Sui shu* 35/29a:

Moreover, with wood they (the Taoist priests) make charms, on which they cut the constellations, sun, and moon. While holding their breath, they grasp them in their hands and make impressions. Of the sick many are thus cured.

Pelliot considers it entirely possible that by this time (around year 600) the Taoists made seals in which images were cut in reverse and in relief, and that with the seals they made impressions on paper (Goodrich, 1955: 18).

In all known historical documents and literary works, a record of the biggest wooden seal is found in Vol. 11 of *Sui Shu*:

Again, there is a *tu she wan chi* 督攝萬機 seal, which is made with wood, one foot and two inches long and $2\frac{1}{2}$ inches wide, with a handle on its back, measuring nine inches long, one inch thick and $\frac{7}{10}$ inch wide. Four characters, *tu she wan chi*, are carved on its belly (the stamping surface) in *chuan* 篆 style (seal characters). This seal is normally kept in the court and used to make impressions over the seams of important documents. It can be obtained for use on request by the President and the two Vice Secretaries of the Board of Revenue and Finance, and has to be returned as soon as the necessary impressions are made.

Naturally, to make impressions on paper with a wooden seal of such big size can be described as wood-block printing.

In accordance with the data and records provided above, it is apparent that there was the *yueh-chang* seal of the Yellow God in the later part of the 3rd century, which was four inches in breadth and engraved with 120 characters and was used to make impressions on clay, and that there was the *tu she wan chi* seal of Northern Chi in the middle part of the 6th century, which was one foot and two inches long and used to make impressions on seams of documents. Li, Shu-hua (1958: 89) considers that these large wooden seals represented the transition from the seal to block-printing.

DATE AND AREA OF THE INVENTION OF THE ART OF PRINTING

The question as to when and where the Chinese art of printing was actually originated still remains a topic in debate even today among the Chinese and Western scholars. As a matter of fact, the basic printing skill had already existed in association with the techniques of printing designs on pottery and bark cloth during the Neolithic Period. The discussion among modern scholars about the invention of printing is merely focused on the date when the first block printing appeared. Based on available records and documents, a thorough study of this question in the chronological order is presented below:

(1) Hsuan Chuang 玄奘 (a monk of Tang Dynasty, 599-664) printed and distributed the pictures of Pu Hsien 普賢 (name of a Buddha) (645-664):

In accordance with the *Yun hsien shan lu* 雲仙散錄 (A collection of ancient and modern anecdotes), written by Fen Chih 馮贇 of the Later Tang Dynasty, Hsuan Chung printed on paper the pictures of Pu Hsien and gave them out freely to the general public. Each year, five loads (of pack animal) of such copies would be dealt out completely. Some of the Chinese and Western scholars show doubt as to the verity of *Yun hsien shan lu*, but Hsiang Ta 向達 expressed in his *Tang tai kan shu kao* 唐代刊書考 that since the printing of Buddhist pictures had long been in practice and widely spread down to the Tang time, this record in *Yun hsien shan lu* appears to be somewhat believable. (Hsiang, 1928: 1-19) Teng Ssu-yu 鄧嗣禹 (1934: Vol. 2, No. 11) thinks that the manifolding and distribution of the pictures of Pu Hsien, in all likelihood, took place between 645 and 664. In view of the account of "print (Buddhist images) on silk or paper" as contained in I Ching's 義淨 *Nan hai chi kuei nei fa chuan* 南海寄歸內法傳 (a report of his travel), Li Shu-hua 李書華 (1958: 133) considers it was quite possible that Hsuan Chuang printed and distributed paper copies of Buddhist pictures, because Hsuan Chuang died only 28 years before I Ching sent back this *chuan* 傳 (report).

(2) Record concerning "print on silk or paper" made by I Ching (692): It is recorded in I Ching's (634-713) *Nan hai chi kuei nei fa chuan* as follows: They make

molds with clay and then in which they cast images with earth; or print (images) on silk or paper, and worship them with offerings wherever they go...."

The *Nan hai chi kwei nei fa chuan* was sent back to China by I Ching in the 3rd year of *tien-shou* 天授 of Empress Wu 武 (692). All the images referred to in above extract, cast or printed, were Buddhist images.

In 1925 Fujita Toyohachi 藤田豐八 (1925: 473) thought that "print on silk or paper" as extracted above represented the printing of Buddhist images in ancient India. He stated:

Based on this point, it can be imagined how popular the printing of Buddhist images was in India at that time. And the duplication of Buddhist images or *dharani* was also the oldest printing of China. Thus, it can be stated that the printing of Buddhist images was not originated in China; instead, it was introduced from India into China and developed into its height there.

In 1926, Kuwabara Tōzō 桑原鷲藏 (1926: 126) refused to believe Fujita's reasoning that the ancient printing skill of China was brought in from India, and refuted it by pointing out the following:

There were printed textiles in ancient India, but no printed Buddhist images had been found among them. In fact, traces of printing had not been observed in India until a long time later. Therefore, there seems to be no reason to believe that the Chinese printing was imported from India.

Hsiang Ta expressed his opinion in *Tang tai shu kan kao* that I Ching's account as mentioned above is the earliest reliable record in history regarding the printing of Buddhist images on silk or paper. Pelliot shares his view. Pelliot states that silk had been known for several hundred years in India previous to the second half of the 7th century, but the word 'paper' had not appeared in the Indian language even in the Tang Period. In reality, during the Tang Time, the word 'paper' existed only in the Sanskrit as well as the mixed Sino-Sanskrit terminology of Central Asia; for example; *kakari* and *kakali* mean paper (Bagchi, 1929: 60, 154) respectively in the Li Yen's 禮言 *Fan yu cha ming* 梵語雜名 of Tang Dynasty and in I Ching's Sanskrit *Chien chih wen* (A book consisting of 1,000 characters formerly used as a primer). In consideration of this fact, Pelliot (1953: 17-18) maintains that the skill of printing Buddhist images on silk or paper in India was introduced initially from East Asia.

I Ching set out by boat on his journey abroad from Fan Yu 番禺 in the 2nd year of *hsien-heng* 咸亨 under the rule of Kao Tsung 高宗 of Tang Dynasty (671); after a long sojourn in India from 673 to 685, he proceeded to Palembang on the island of Sumatra. In 689, he came back to Canton for 4 months and then went back to Sumatra again. After a long stay of 24 years abroad, he came home by sea in the beginning year of *cheng-sheng* 證聖 under the reign of Empress Wu (695). *Nan hai chi kwei nei fa chuan* was a report he sent to China during his stay in Sumatra.

In my opinion, "print on silk or paper" as reported by I Ching may have been a practice in Sumatra because there were in existence on that island during the later part of the 7th century the two cultures of impressed pottery and printed bark cloth as well as the skill of printing Buddhist images on silk or paper from wooden blocks or pottery molds. As to the words *kakari* and *kakali*, meaning paper, as pointed out by Pelliot, my examination proves that they were nothing but a type of bark cloth paper, i. e. bark cloth used as paper. Such kind of paper is still in use among the Indonesians (Ling, 1961: 17).

Aside from the printing of Buddha figures by the use of engraved wooden blocks or pottery molds there was the stencilling method of decorating bark cloth with designs. Many such stencilled Buddhist figures have been found at Tun-huang 燉煌 Turfan in China. They were stencilled on paper, on pottery, and on plastered walls (Carter, 1955: 56). In addition, Pelliot discovered a small carved wooden block for duplicating certain Buddha figures at Kutch of Sinkiang Province and it should date from not later than the year 800, according to the deposit in which it was found.

(3) The printing of one million copies of the *dharani* (charms) to be placed in a million tiny wooden pagodas in ancient Japan:

Among the ancient Japanese block prints which are extant today, there are a number of copies of the above mentioned printed *dharani*. The work of making the million pagodas began in the year 764. Within each of the pagodas was placed a single copy of the *dharani* in block print. Although it still remains a question unsettled among both the Oriental and Western scholars' as to whether these prints of the *dharani* were made from copper, or wooden, or stone, or porcelain blocks, it can be ascertained that the printing was done in the period 764-770 (Ch'u, 1953: 27). Moreover, two different kinds of paper, the yellow paper and the *ku* 穀 paper (Li, 1958: 137), were used for this printing. In my opinion, the *ku* paper may have been, in all probability, a kind of bark cloth paper.

(4) The Preface to Pai Chu-i's 白居易 *Chang ching chi* 長慶集 (A collection of Pai's literary writings, mostly poems) (824):

Yuan Chen 元稹 (alias Wei-tzu 微之, 779-831) of Tang Dynasty wrote a preface to Pai Chu-i's 白居易 (alias Lo-tien 樂天, 772-846) *Chang ching chi*, in which he stated:

Almost no walls of the imperial city, monasteries and temples, and courier stations on which they (Pai's works) are not written; there are few people of all classes who do not repeat them. Everywhere, written copies and block prints of them are on sale at the market places, in the wine shops as well as tea houses....

Yuan Chen added the following footnote under the word 'everywhere' in above extract:

In Yang 揚 and Yueh 越 (two prefectures of Tang Dynasty, in present Kiangsu and Chekiang Provinces), copies of the miscellaneous poems written by both Lo-tien and myself are made, in most cases, from engraved blocks and put on sale at the market places.

This preface to Pai's *Chang ching chi* was completed in the 4th year of *chang-loh* 長樂 under the rule of Mu Tsung 穆宗 of Tang Dynasty (824).

(5) Feng Su 馮宿 of Tang Dynasty's memorial with a recommendation, approved by the court, that the block-printing of calendars be forbidden (835):

The following text is quoted from Vol. 160, *Tse fu yuan kuei* 冊府元龜 (the most precious collection of documents):

On December 29 of the 9th year (of *tai-ho* 太和 of the rule of Wen Tsung 文宗 of Tang Dynasty, 835), Feng Su (767-837), the *chieh-tu-shih* 節度使 (imperial commissioner) of Tung Chuan 東川 (Eastern Szechuan), proposed in a memorial that an imperial edict be promulgated forbidding the printing of calendars with wood block. In the two Chuan 川 of Chien-nan 劍南 (present Szechuan) and the Huai-nan-tao 淮南道 (lower Yangtze Valley), calendars are printed by the people by means of wood block and sold at the market places. Each year, before the Bureau of Astronomy has memorialized the Throne suggesting the promulgation of the new calendar, these printed calendars are already everywhere. That is contrary to the rule of respectfully handing up (the new calendar approved by the Emperor). Consequently, an order was issued forbidding (these private printings).

The above passage is also included in the *Chin ting chuan tang wen* 欽定全唐文 (compiled by the imperial order) and is entitled "Feng Su's memorial to the Throne suggesting forbidding of the blockprinting of calendars"

(6) The block-printing of the Biography of Liu Hung 劉弘 by Ho-kan Chi of Tang Dynasty (847-849):

One paragraph of Fan Shu's 范攄 *Yun-hsi-yu-i* 雲溪友議 narrates:

Ho-kan Chi 乾干泉, the minister, had spent more than fifteen years in search for the elixir of the dragon and tiger. Later when he was in the post of Chiang Yu 江右 (an official in charge of the right bank of the Yangtze River) he invited a large number of magicians to help compose the Biography of Liu Hung and had several thousand copies of it printed, which he sent to those, both within the court, and out in the four seas, who were devoted to the pursuit of alchemy. Kuwabara (1926:112) believes that the printing of the Biography of Liu Hung 劉弘 was done by Ho-kan Chi during the period from 847 to 848, while Li Shu-hua (1962:21) estimates that it was done between 847 and 849.

(7) The printing of *lu shu* 律疏 (A kind of Buddhist Canon) proposed by Ssu-kung Tu 司空圖 (871-879):

In Vol. 9 of *Piao sheng wen chi* 表聖文集 by Ssu-kung Tu of Tang Dynasty, the following account is contained:

To engrave blocks to print the *lu shu* for Hui Chueh 惠確, who, a Buddhist monk, gave instruction in the canon at the Ching Ai 敬愛 Monastery of Tung Tu 東都 (Eastern Capital, Loyang):... Since misfortune fell on the city of Loyang, burning has often occurred. A great number of the original prints have been lost, therefore, new blocks should be cut to print better copies for the purpose of long use....

Based on the examination in Hsiang Ta's *Tang tai kan shu kao*, the above passage was written between 871 and 879.

(8) An account concerning printed books in Liu Pien 柳岷 of Tang Dynasty's *Chia hsun hsu* 家訓序 (Preface to the Family Instructions) (883):

The following statement was quoted from Liu's *Chia hsun hsu* by Yeh Chih 葉實 of Sung Dynasty in his *Ai jih chai tsung chao* 愛日齋叢鈔:

In the third year of the *chung-ho* 中和 period, the year *kuei-mao* 癸卯 (883), during the summer, it was the third year in which the imperial chariot had been in Shu 蜀 (present Szechuan). I was then a member of the imperial secretariat. One day on one of my holidays (taken every ten days) I was examining the books by the southeast of the second enceinte (of the city wall). These books consisted mostly of works on divination of dreams, geomancy, the nine (heavenly) palaces, the five planets, and various other themes of the *yin-yang* 陰陽 (school); there were also dictionaries and books of lexicography. For the most part, they had been engraved on blocks and printed on paper. However, the majority of these books had become illegible as a result of smearing and water damage.

According to the above record made by Liu Pien, it is evident that books of various categories were printed at I-chou 益州 during the period of late Tang. Also, it may be derived that block-printing of books was quite prevalent in Szechuan at that time.

As pointed out in the foregoing, Hsuan Chuang printed the images of Pu-hsien during the middle part of the 7th century (645-664); I Ching (634-713) gave an account of the "printing of Buddhist pictures on silk or paper" in his *Nan hai chi kuei nei fa chuan* in the latter part of the 7th century; and a small engraved plate for printing certain Buddhist image of early 8th century was found in Sinkiang Province by Pelliot. Based upon these data and records, it can be reasonably inferred that wood blocks had already been in use for producing copies of Buddhist images in China in the 7th century. During the later part of the 8th century, a million copies of *dharani* were printed with blocks in Japan to be placed a copy each within a million tiny pagodas. As is generally believed, such block-printing skill was, most probably, introduced into Japan from China. Thus, it may be induced that the art of printing

had existed in China in the early part of the 8th century. Therefore, I share Li Shuhua's opinion that the Chinese art of printing was most possibly invented in the initial years of the 8th century; but practically speaking, printing, in its broad sense, had been developed in China even in the pre-historic ages.

As for the area where the Chinese art of printing first came into birth, it can be summed up that the skill of printing books from engraved blocks was in wide use from mid-7th century to late 9th century (all within the Tang Period) in the following places of ancient China: Yangchou and Yuehchou (in present Kiangsu and Chekiang Provinces); Chien-nan hsi-chuan and Chien-nan tung-chuan (the eastern and western parts of present Szechuan Province); Huei-nan tao (in the area north of the Yang-tze River of present An-huei, and Kiangsu Provinces); Chiang-yu (in present Kiangsi and Hunan Provinces); Tung-tu (present Loyang); and Yi-chou (present Chengtu). During the period of the Tang Empire, which had her capital at Chang-an, the printing of books by means of engraved blocks was prevailing in Kiangsu, Anhuei, Kiangsi, Hunan, and Szechuan Provinces of the Yang-tze and Huei valleys. But no record can be found as relates to such practice in North China except in Lo-yang. Besides, the books and volumes then printed consisted chiefly of miscellaneous poems, calendars, various theories of the *yin* and *yang* system (the dual principle of Chinese philosophy), and works on divination of dreams, geomancy, the nine palaces, the five planets, and dictionaries as well as lexicons; while few important works of the categories of Classics, History, Philosophy and Belles-Lettres were then printed. This constituted a very strange phenomenon and incompatible with the Chinese tradition, namely, the Chinese culture, specifically literature, had flourish in the North by far more glowingly than in the South. In order to interpret this odd phenomenon, we can not help admitting that the development of the printing art was closely related with the two ancient Chinese cultures of impressed pottery and bark cloth.

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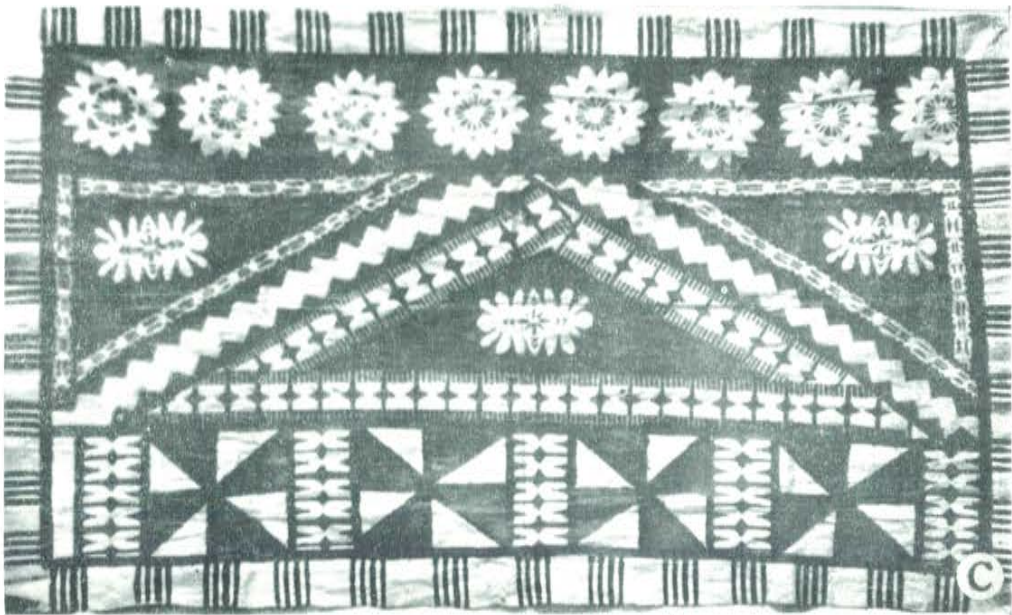
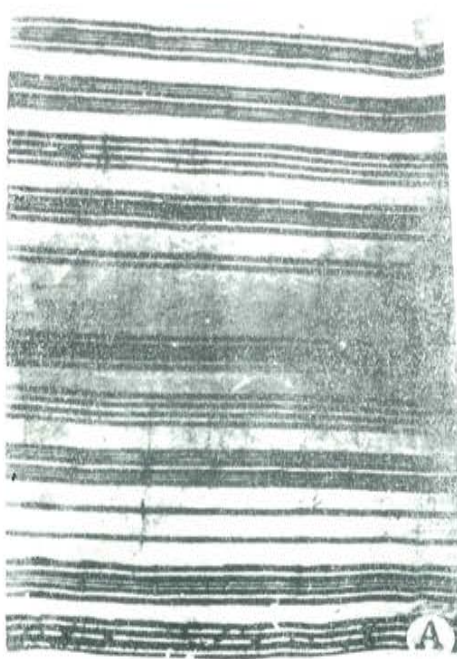
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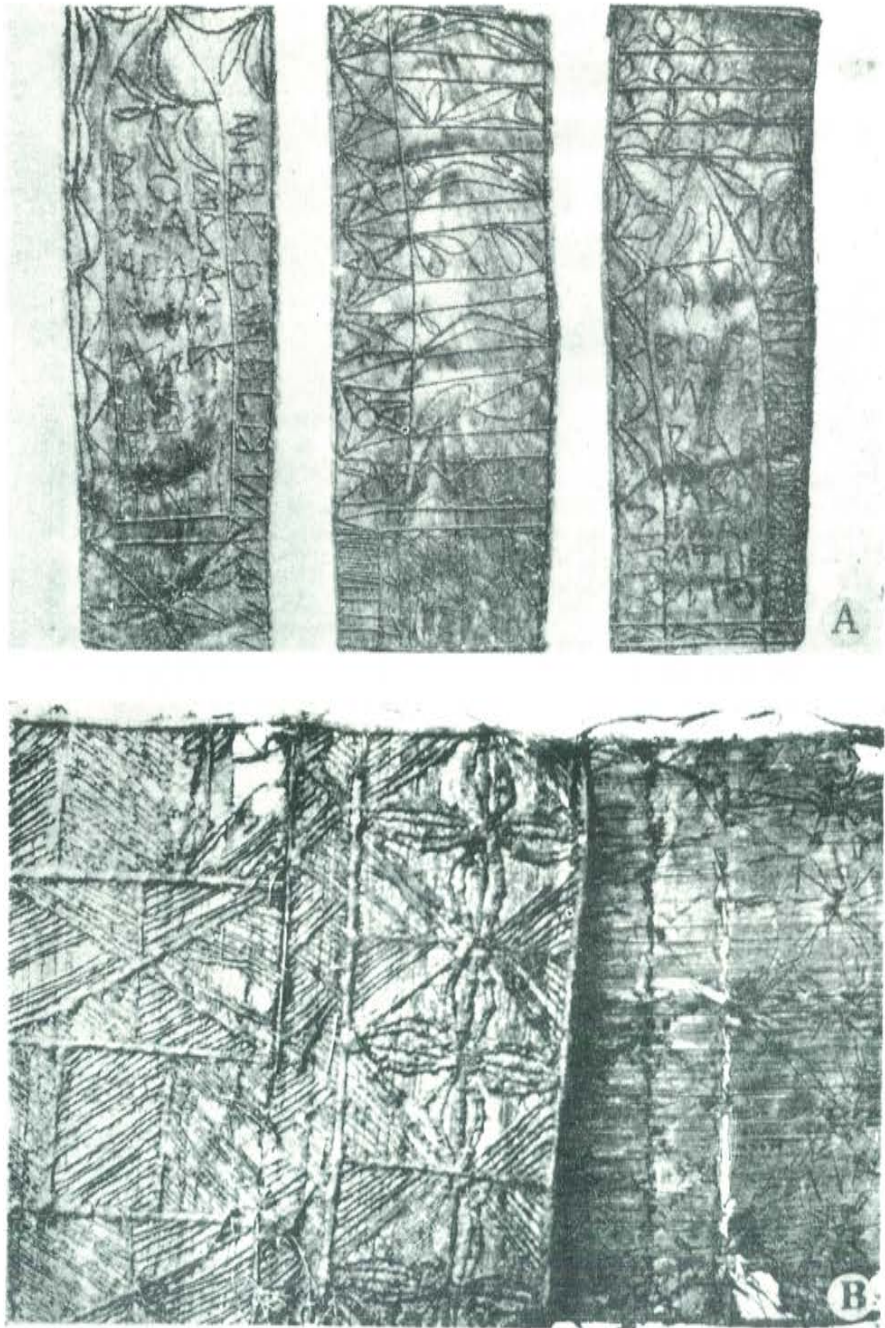
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菲基羣島 Lau 島人的樹皮布文飾

Lauan bark cloth designs: A. Framework, B. Framework filled with designs, C. Fijian stencilled designs on bark cloth among the collections of the Institute.



A. Futuna 島人的花模板

Tablets of bark-cloth designs, Fatuna.

B. Tongatabu 人的花模席

Coconut-fibre printing mats made near Nukualofa, Tongatabu.



A. 薩摩亞人印刷樹皮布的雕刻

The carved board for printing designs on bark cloth, Samoa.

B. 印刷花紋後再用手繪

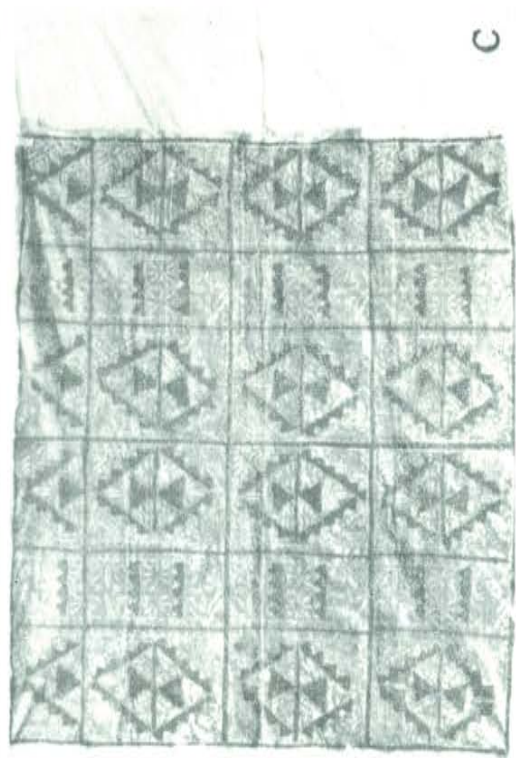
Completing a bark cloth design with freehand painting.

C. 本所藏薩摩亞的樹皮布

A piece of Samoan bark cloth among the collections of the Institute.



A



C



A. Yuracare 印第安人舉行儀式時男人所著衣服
Yuracare ceremonial clothes of bark cloth for men. (After Nordenskiöld, 1928.)

B. Mojo 印第安人所著樹皮布衣服
Tapa costumes of Mojo Indians. (After d'Orbigny, 1839.)

六 印文陶的花紋及文字與印刷術發明

- 一、中國與東南亞的印文陶
- 二、陶印模的用途問題
- 三、璽印用於印布印木印陶印泥
- 四、模印磚瓦的花紋及文字

本文為刊載在本刊第十四期的樹皮布印花與印刷術發明一文之續，此二文原來寫作成一篇，後因篇幅較多，乃分題發表，所以如讀者對於本題有興趣，希望將二文同時閱讀，因兩篇一時寫成，材料的排比，行文的語氣，有先後及相互的關係，現分為二，有些地方感到勉強，如前文的第三節木印為璽印與雕板印刷的過渡，及第四節印刷術發明的時期與地域為原文的第七、八兩節，故以二文同讀，則先讀前文的第一、二兩節，再讀本文的四節，最後乃讀前文的三、四兩節，則可覺得順理成章，一氣呵成。

印文陶與印刷術的關係，研究印刷術發明史的中外學者亦曾提到過與印文陶有關的問題，如 Carter⁽¹⁾氏於1925年在他的書中璽印一章裏，提及璽印的用於印泥；又在同年藤田豐八⁽²⁾指出唐義淨（634~713）南海寄歸內法傳中的“造泥制底及拓模泥像，或印絹紙，隨處供養”。如上述的璽印印泥和拓模泥像都算為印刷術的先驅，則我們更應溯源到新石器時代的印紋陶了！印紋陶文化最初以繩纏木拍，或雕花木拍，在陶器上拍印花紋，或以土燒成的陶印模壓印文樣。迨至春秋戰國璽印的用途漸廣，用於封泥外，又在陶器上戳印陶文。至秦漢之時，又在建築用的泥造磚瓦上，模印花紋與文字。所以要探討中國古代印刷術的起源問題，當從新石器時代與樹皮布印花同時並存的印紋陶文化一同研究，因為這兩種文物的製造技術，打製工具及所印花紋，有許多相同之處，因此她們可稱是姊妹文化，二者都可說是後世印刷術發明的先河。

(1) Carter, 1925, pp. 11-14.

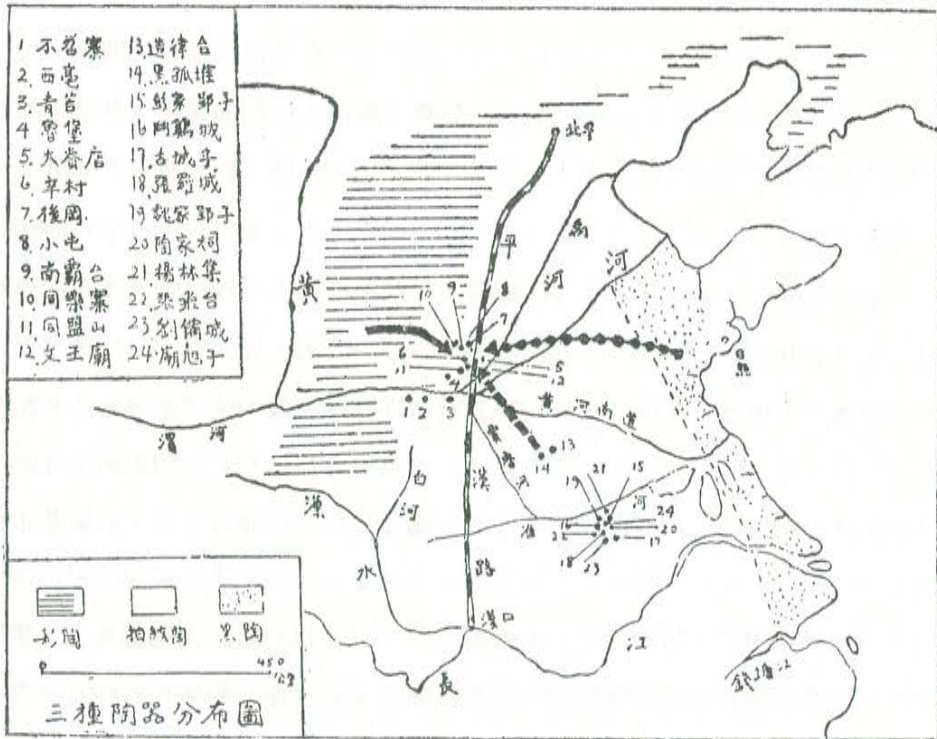
(2) 藤田豐八, 1925, p. 473.

一 中國與東南亞的印文陶

中國在新石器時代印紋陶分佈的地域已很遼廣。在華北的中原地帶據石璋如氏新石器時代的中原一文裏說：

曾經讀過中國史前史的，大家都知道新石器時代。在黃河流域有兩種各自異趣的文化型態。一種是在黃河的上游，炫赫於西北高地的彩陶文化，也叫仰韶文化；一種是在黃河的下游，燦爛於東方海濱的黑陶文化，也叫龍山文化。介乎這兩者之間的中原地帶，……另有一種拍紋陶文化⁽¹⁾。

石氏所述三種陶器的分佈，如插圖一所示，茲舉小屯，造律臺，黑孤堆三個遺址出土的印文陶分述之。



插圖一 新石器時代中原的彩陶印陶黑陶分布圖
Fig. 1 Distribution of painted, imprinted and black pottery of Neolithic Age in Central China.

(1) 石璋如, 1952, p. 65.

小屯的印文陶有輓拍文飾與壓印文飾兩種，但後者甚少見，如圖版壹：A所示為輓拍文飾，據李濟之先生的描述說：

輓拍文飾：利用拍打的痕跡作文飾，有三方面可以看得出，(甲)由雜亂的拍文變成整齊的，有規律的；這種技術的進步，顯然帶有美的意味。試將那縱橫斜出(圖版壹：1~2)與那有規則的比(圖版壹：8~10)，後者比前者自然要悅目得多；那雜亂也許只能算製作的痕跡，那有規則的必須認為是文飾了。(乙)又一種就是將拍製痕跡劃定範圍的趨勢，將範圍以外的痕跡都抹去，或打磨光滑；由這個階段就演變到(丙)第三階段，在劃文飾盛行的時期將拍製痕跡留作填空；不過在這一階段，主要的文飾是劃文。但那是重要的變化，還是(丁)拍製痕跡本身的結構，這又可以分兩面來說：一是它們的結構，一是它們的粗細。雖說是大部的拍文都屬於繩紋，但扁條的，方格的，細索的，在全形器中都有例可尋，要是連陶片都算，更可加藤紋，蓆紋在內⁽¹⁾。

至於小屯印紋陶除了輓拍外，還有少數用壓印方法的印文，李氏又指出：

從最簡單的壓一條線利用模子印一種花樣，中間也許沒有什麼複雜的經過。348 R型標本(原書圖版肆貳)是唯一的具印壓文飾的全形器，花樣作連環印形：此外在碎片上，尚有套圈的和蝶紋的印壓文飾，及若干釉陶片上的雷紋。以這方法製文飾在殷虛時代並沒盛行過⁽²⁾。

在豫東永城縣造律台與黑孤堆兩遺址所出土的印文陶片如圖版壹：B，所示：造律台的屈範紋中分 1~2 繩紋，4~6 條紋；7, 9. 方格紋；11~16劃紋；黑孤堆的 3 橫條紋，8 方格紋，10波浪式劃紋⁽³⁾。如圖版貳為中原區印紋陶器：A為不召寨的拍印陶鬲⁽⁴⁾；B為小屯出土的壓印陶鬲；C為小屯的拍印陶罐。

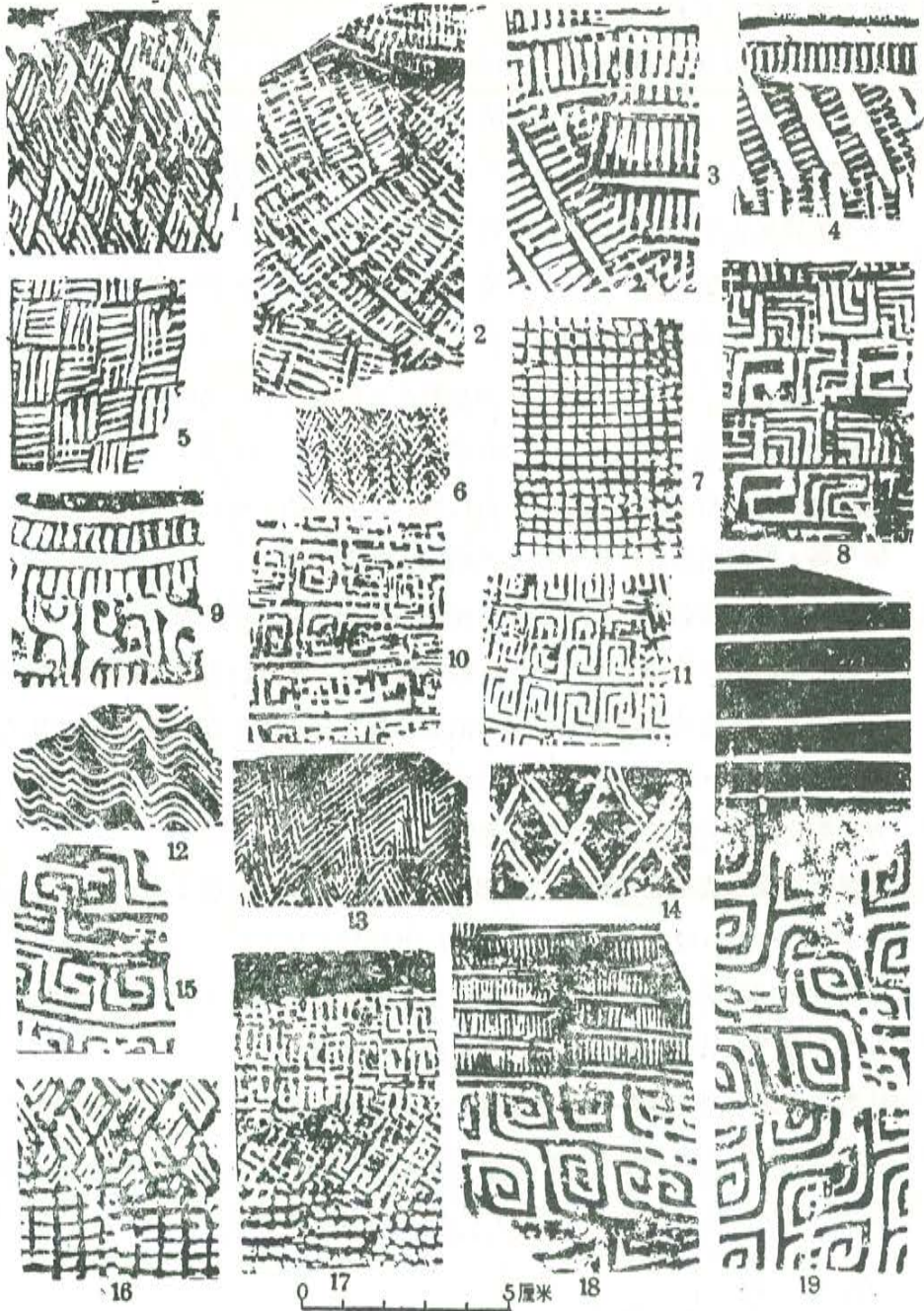
印紋陶除上述中原地區外，其分佈區域廣及華中與華南，且遠至中南半島及印尼羣島。而在中國東南地區的印文陶尤具特色，如插圖二所示：1~11，丹徒大港葛村出土，12~14南京北陰陽營出土，15~17揚州鳳凰河尤家莊出土，18~19，南京鎮金

(1) 李濟，1956, p. 117.

(2) 李濟，1956, pp. 118-119.

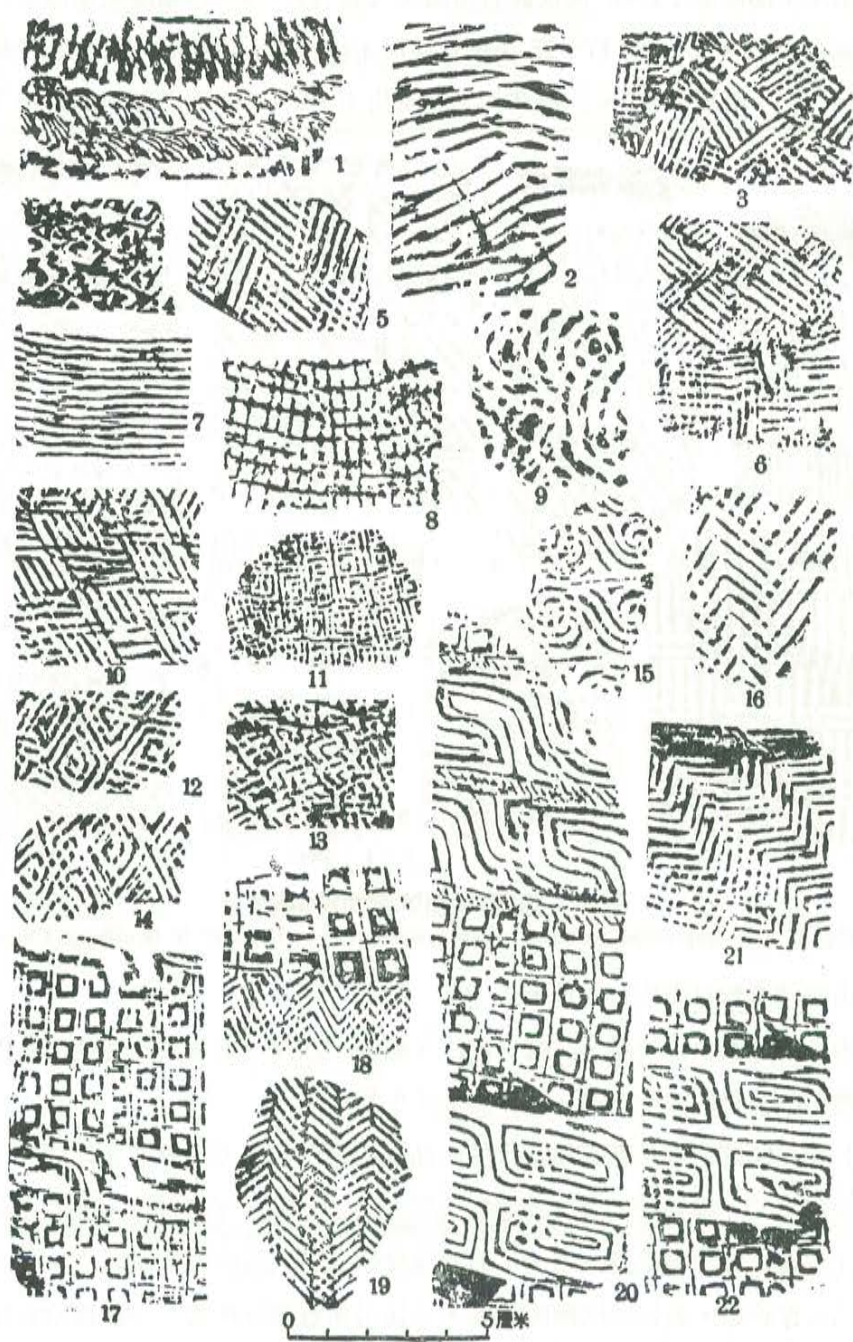
(3) 李景昉，1947, pp. 105-116.

(4) 吳金鼎，1938, pl. 10, 20.



插圖二 新石器時代東南地區的印紋軟陶紋飾

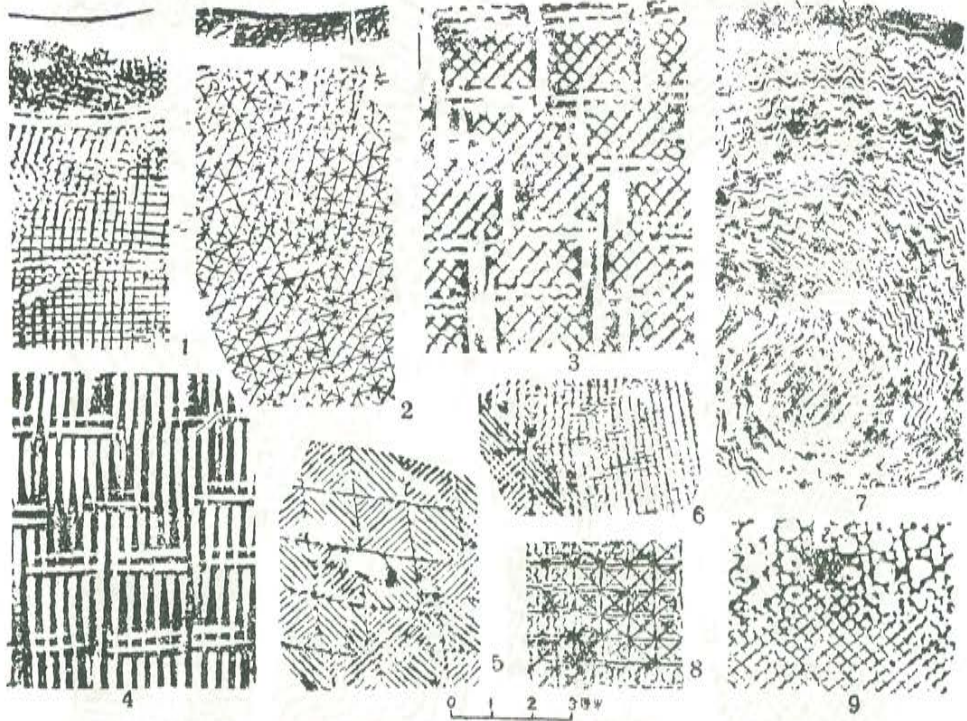
Fig. 2 Neolithic impressed patterns on soft pottery in Southeast China.



插圖三 東南地區新石器及戰國時代的印紋硬陶紋飾

Fig. 3 Neolithic and the Chou time impressed patterns on stoneware in Southeast China.

村遺址出土；插圖三：1~8 閩侯曇石山出土（新石），9~14 福建光澤出土（新石），15~16 武平出土（新石），17~18 揚州鳳凰河尤家莊出土（戰國），19~22 丹徒大港葛村出土（戰國）；插圖四：1~2 紹興漓渚漢墓出土，3~4 寧波祖關山漢墓出土，5~9



插圖四 東南地區漢代的幾何印紋硬陶紋飾

Fig. 4 The impressed patterns on stoneware of Han Dynasty in Southeast China.

浙江蕭山臨浦茅灣里漢代古窯址出土⁽¹⁾。

所謂東南地區包括安徽、江蘇、浙江、福建、江西、廣東東部在內，在此區內已發現的幾何印紋陶的時代問題，據尹煥章氏的推測：

- (1) 幾何印紋軟陶是新石器時代的產品，但其年代上可至殷商、西周，下可至春秋戰國；(2) 幾何印紋硬陶的年代上至春秋、戰國，下至漢代，(3) 幾何印紋陶在江浙地區是和銅鐵器並用的，而在福建還是新石器時代的用具⁽²⁾。

裴文中氏也曾說過，幾何印紋陶的時期，可能由新石器時代起，一直延續到漢代⁽³⁾。

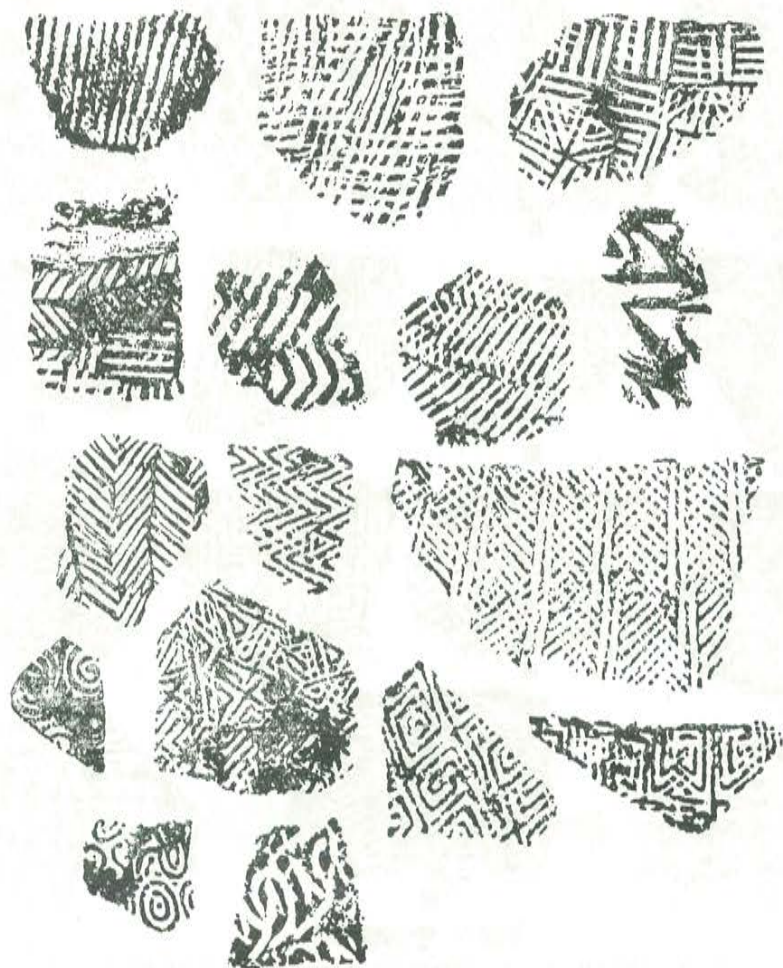
(1) 尹煥章，1958，pp. 15-85.

(2) 尹煥章，1958，p. 84.

(3) 裴文中，1954，p. 57.

臺灣亦可包括在東南地區之內，所以陶器上文飾也以印紋為最多，據鹿野忠雄最：

我們若說，臺灣先史時代陶器之紋飾以各種的印紋為最佔優勢，當無大誤。其中最常見的是網紋乃至方格紋，罕見有蓆紋。這些紋飾在西海岸分佈得絕對優勢，在圓山貝塚也是常見。繩紋乃至撚絲紋，雖有分布得疏或密之各程度上的差異，但大致可說見於全島的。這些紋飾普通都在口緣部之外的器身全表面。此外，可歸類於印紋的還有凹點紋及圓圈紋，多半見於口緣部或肩部外

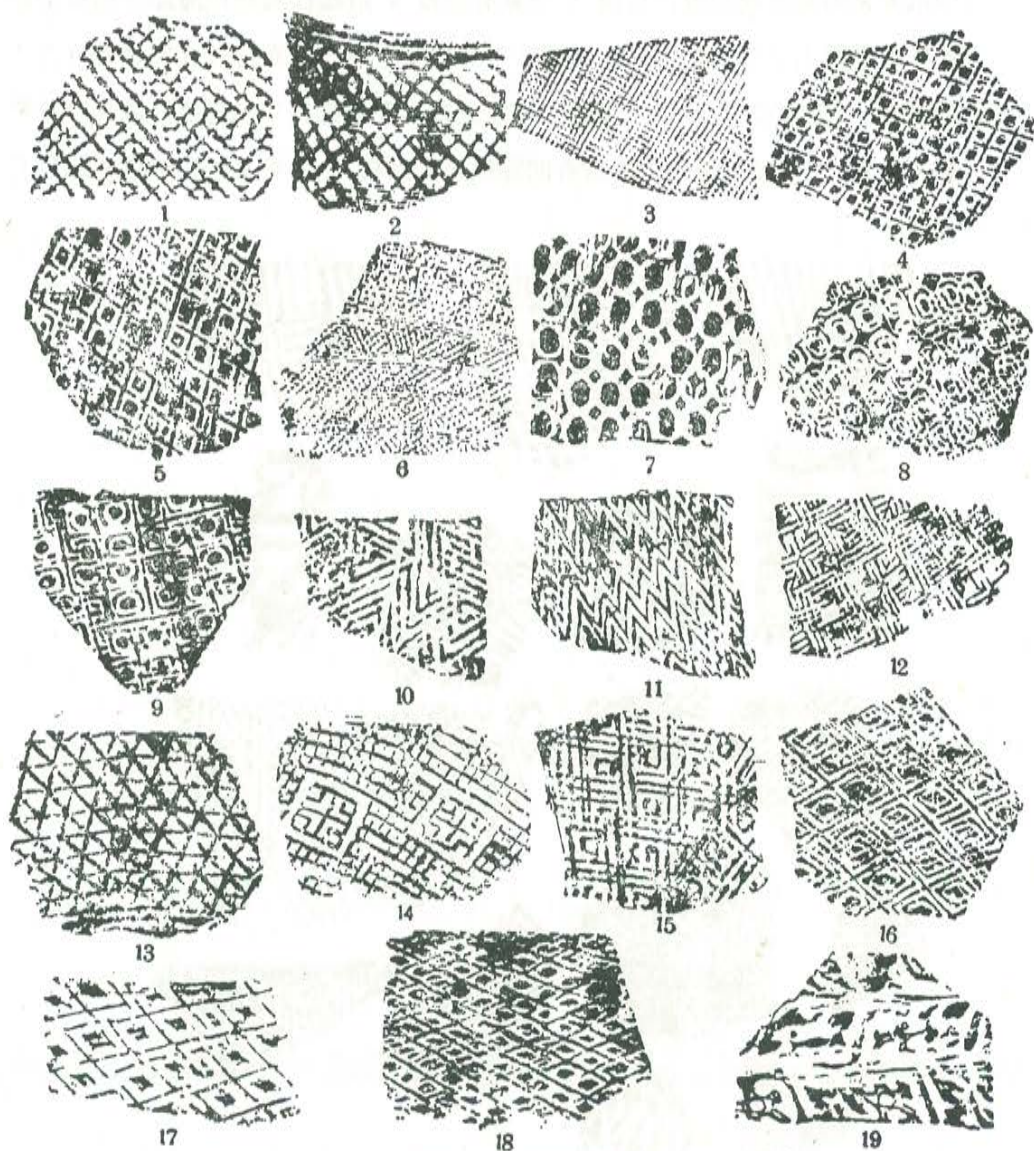


插圖五 香港印文軟陶花紋

Fig. 5. The impressed patterns on soft pottery of Hong Kong.

表，此種紋飾在東海岸較常見。用某種蚌殼的頂部所捺印的一種蚌殼紋，見於臺南地方。以平行直線紋交叉而成的印紋，在西海岸多見⁽¹⁾。

據鹿野氏上述，臺灣的印紋陶的花紋雖不算少，然較之華南區廣州和香港兩地發現陶



插圖六 香港硬陶印紋

Fig. 6 The impressed patterns on stoneware of Hong Kong.

(1) 鹿野忠雄，1955，p. 59.

器印紋頗為遜色。

在華南區廣州華僑新村西漢墓發現的印陶花紋有細紋，方格紋，米字形方格紋，幾何形印紋（圖版玖：C, D），其中以方格紋為最多⁽¹⁾；香港發現的印陶花紋則更多，陶質亦分軟硬兩種⁽²⁾，如插圖五所示：為軟陶片花紋⁽³⁾，插圖六：皆為硬陶片紋飾⁽⁴⁾。

此一發達於中國東南地區的印陶文化，西行分佈於湖北湖南廣西及海南島，再西則至雲南及越南東京的東山文化中；南下又至中南半島南部，馬來半島、蘇門答臘、爪哇、婆羅洲等地。印紋陶可分為軟陶與硬陶，軟陶殷商已有之，硬陶則發展在長江流域春秋時吳越地區，或在漢代開始南移的⁽⁵⁾。

印文陶的製作有拍印與壓印兩種方法，拍印是先發明而分佈最廣，壓印是後來的而較為少見。故石璋如氏對於印文陶亦稱拍紋陶。他對拍紋陶的製作過程曾說：

拍紋陶的紋飾則為拍打。就現在所知拍紋陶的紋飾有四種：條紋，細繩紋，粗繩紋與方格紋。試檢查各種拍紋陶的印痕，條紋好像是細草莖編織物的印痕。在細繩紋罐子的底部，每有草瓣子的印痕，那印痕是把器物放在草編織物上的表現。方格紋據現在所知，是就木板上刻成方格，板上凸出部分，打在器上是凹入的部分；板上凹入的部份，打在器上是凸出的部份。如果以具有方粒行列的植物果實，打出器面也可以呈方格紋的。粗繩紋好像稻稈或麥稈的印痕。那變很可能的，條紋為荊條或細柳條編織的拍子，粗繩紋為稻稈或麥稈編成的拍子，細繩紋為細草莖編的拍子，方格紋為天然果實的拍子⁽⁶⁾。

石氏上述的推測大致是對的，李濟在他所著小屯陶器第五章製造痕跡中較石氏更進一步說：

殷虛陶器上所保有的最普通痕記，要算是外表所留的拍文了，序數中容器類所

(1) 麥英豪，1958, p. 47.

(2) Finn, 1958, p. 99.

(3) Davis and Tregar, 1960, p. 205.

(4) 陳公哲，1957, pp. 10-11.

(5) 市川健二郎，1961, pp. 1-3.

(6) 石璋如，1952, p. 68.

舉的三百〇三例，外表有拍文的共佔一百四十一件；……拍製所留的痕記，大部都表現繩紋上，與馬凱氏在巴爾瑞吉村⁽¹⁾及石璋如氏在龍泉鎮所見的拍文是不一樣的，這兩處拍打結果，只把器物拍光滑了；但在華北平原，如山東河南一帶，却尚保存在掌板上，挖平行槽的方法。這樣的掌子拍在半乾的陶坯上，表面都會留有扁條的槽痕。殷虛陶器的繩紋，沒有疑問也是拍出來的；繩印就是掌板上所纏的（或雕的或燒成的）繩索拍下來的。纏的繩索有粗有細，故留的繩印有狹有寬。寬的每公分只有一條多一點；狹的每公分可有八條；較普通的體徑每公分三條至四條。早期的掌板，也有纏草，纏細麻，或挖成方格的：這都可以從留在陶器上的痕跡看出來；這些痕跡的變遷，雖大有表示時間性的可能，但都屬於拍墊法一個範圍內⁽²⁾。

以上李石兩氏根據陶器上的印痕而推測印紋陶製作的方法，證之以民族學上的材料，大致是不錯的。現今雲南西南的瓦族和傣族尚能製作印紋陶器，茲分述之。

雲南西盟卡瓦山靠近中緬邊界的科來寨的瓦族至今尚保存原始製陶法，他們做陶器全是手製，還沒有用輪製的。製陶僅用五種簡單的工具木拍子，製陶墊子，石球，篾圈，水槽（圖版叁A），陶器上的印紋是用拍子拍印的。他們的木拍子全長38cm，拍身寬5cm，長9cm；柄長29cm。在拍身的一面或兩面用刀子刻有平行的橫溝，或是方格紋（圖版叁B），其用途是製陶時拍打陶坯的外表，使之堅固不致破裂。

陶器紋飾最常見的有兩種：（一）籃紋，這裏所說的‘籃紋’並非以籃子為模型而做成的，它是用木拍子上刻有一道道平行溝槽，打在陶坯上，一排的疊列起來，相當整齊，便形成緣編籃的紋飾，這種紋飾在他們的酒罈表面比較常見（圖版叁E）；（二）方格紋，先把小方格刻在木拍子上，在製陶器時拍印在陶胎上的，此亦非模製，這種紋飾都是在陶罐的腹部周身（圖版叁F）⁽³⁾。

在雲南車里的西雙版納傣族至今仍製印紋陶，但傣族的較瓦族的製陶較為進步，他們已用陶車輪製，同時印陶的花紋也較為複雜。所用的木拍子，據張季的調查報告

(1) Mackay, 1930, pp. 127-135.

(2) 李濟, 1956, pp. 100-101.

(3) 李仰松, 1958, pp. 33-37.

說：

木拍子，其形式和用途與卡瓦族使用的木拍子差不多，只是規整些，最長的36，最短的30厘米。上面刻有直條紋，斜條紋和方格紋等（圖版肆），光面的主要用于拍打陶坯之外表，使陶壁堅實。據一位婦女告訴我們說：用有花紋的木拍子拍製成的陶器，比用光面木拍子拍製成的還要堅實些⁽¹⁾。

上述係卡瓦與傣族的製陶，可見在新石器時代的製造印紋陶方法，在中國今日之邊徼，文化落後的民族中，猶保存其原始技術。

中南半島也保存原始印紋陶製法，在老撾的 Cammon 省，Nhommalat 西北的 Nong-Ane 村的製陶工具，如插圖七所示：1. 陶車：a 車的全部剖面；輪上置一印紋陶器；b 輪的上面；c 輪的剖面，2. 陶拍子：e 和 g 木拍的正面；f 側面；d 橫截面，3. 陶罐：h 正面，i 底部。4, 5. 長方形墊布。6 燒陶罐；上燒稻草；下燃竹子。圖版伍 A 為陶罐，陶車、陶拍的全貌。此村已用陶車製作，輪下裝一木軸，插入竹筒，筒底置一圓石子，以利軸之易於旋轉。置陶罐於輪上，用拍子上下打拍，左手拿一塊長方布條做墊子，以免在器上留有指痕⁽²⁾。Colani 女士又在老撾 Trân-ninh 省北部 Ban Nam Mong 地方找到製陶工具及陶罐，如圖版伍 B 所示：1. 菱形紋木拍子；2. 三齒木梳；3. 四齒木梳；4. 陶罐，頸部有木梳齒形的劃紋；底部有木拍的菱形拍紋⁽³⁾。

在緬甸與阿薩姆的 Sema Nagas 族還保存了印紋陶的最原始製法。他們有兩種木拍子：一是光面的，另一用以拍紋的，這種木拍子尙未雕刻，僅以粗細的繩子纏繞而成。如圖版陸所示：a 以纏繩的木拍子打拍陶罐外面，而以右手墊在罐的裏面；b 用光面的拍子作最後的打拍，以拍平繩痕，使罐面光滑；c 陶罐初步製作的坯子和纏繩的大小的木拍；d 製成的陶罐；e 雙陶罐用以煮飯和肉或其他的食物；f 儀式陶罐用於祭祀⁽⁴⁾。

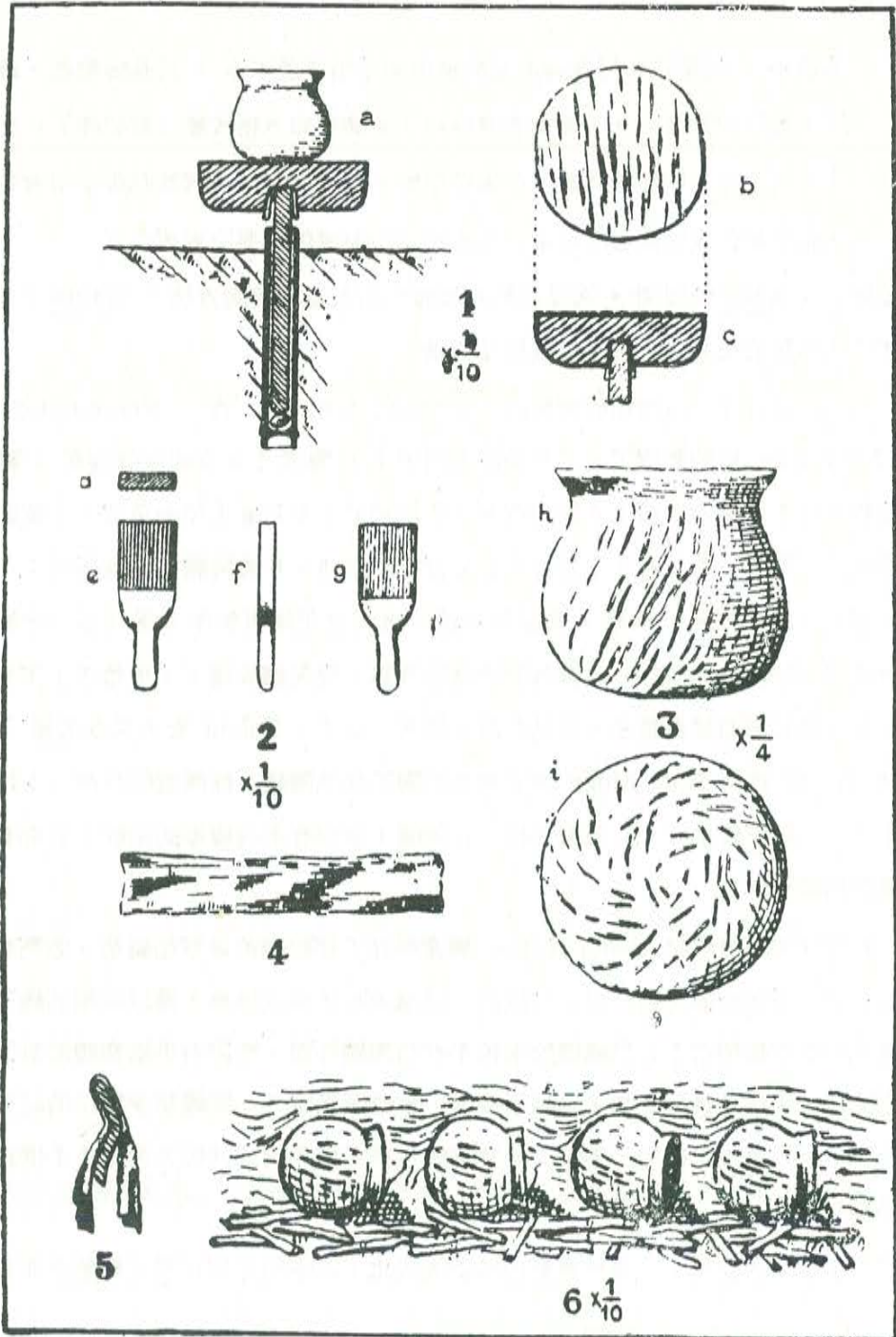
由上簡單的敘述，已可見東亞的印紋陶文化，其空間分佈自華北經華中而華南，

(1) 張季，1959, pp. 488-489.

(2) Colani, 1931, pp. 449-451.

(3) Colani, 1933, p. 352, pl. 8.

(4) Hutton, 1921, pp. 53-55.



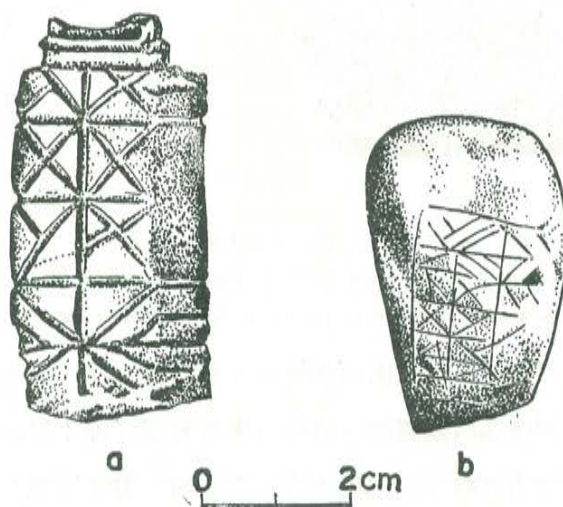
插圖七 老撾 Cammon 省的製陶工具

Fig. 7 The tools for making pot, Cammon Province, Laos.

再經中南半島，南抵印尼羣島；其時間延續，早起於新石器時代，而直至今日，此一文化最原始以繩纏繞木拍子的工具，在 Sema Nagas 人迄今猶在使用，故尚為一活的文化。且印紋陶與樹皮布兩種文化，不僅製作的工具相同，而二者空間的分佈與時間的延續亦都是相近的⁽¹⁾，誠可稱為姊妹文化。這兩種文化都影響了後世印刷術的發明。

二 陶印模的用途問題

在中國大陸的新石器時代以至漢代的遺址或墓葬中，近數十年來曾發現許多不知名稱與用途的陶製品，它的表面是用刺、劃、印等方法製成的凹凸不平的糙面。在發掘報告中都稱為製陶工具中的印模，或稱為陶鏟、玩具等。據安志敏氏的推測，這類陶器可以稱它為陶甗，說文：“甗，磋垢瓦石”。在用途上是包括搓垢刮治皮革或其他用處⁽²⁾。安氏的這一假設，是有問題的，因此類陶器除中國外，在中南半島及馬來半島都有發現，Beyer 氏認為這許多石印模(插圖八)和陶印模可能是印刷樹皮布花紋用



插圖八 a 菲列賓和 b 馬來亞的雕花石印模

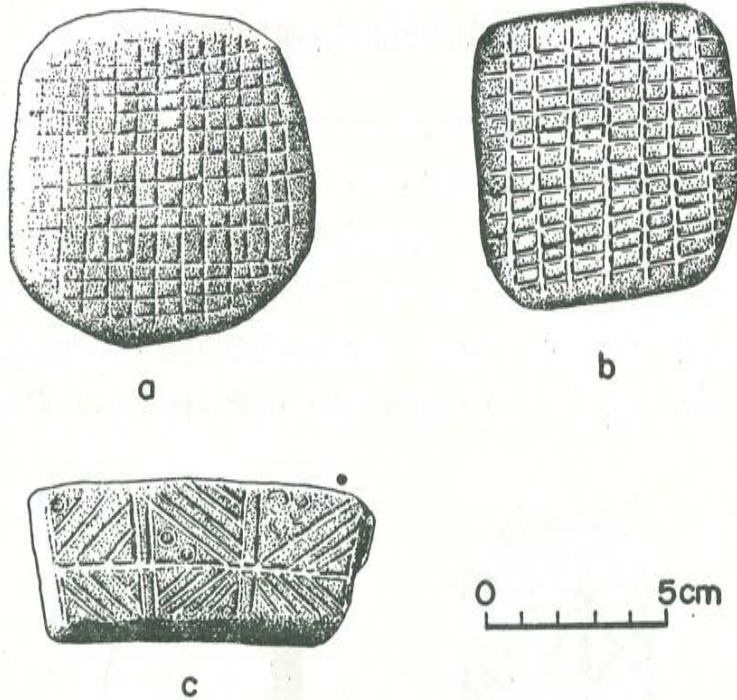
Fig. 8 Stone printers for bark cloth from the Philippines and Malaya.

(1) 凌曼立，1960，pp. 331-338.

(2) 安志敏，1957，pp. 69-77.

的⁽¹⁾。茲述各地發現的陶印如下。

馬來半島 在霹靂州的 Kuala Selinsing 地方發現三塊陶印，如插圖九所示：a 闊 8.8 cm，b 闊 7.5 cm，和 c 長 9.8 cm。Evans 氏對 a 與 b 兩件陶印稱之為樹皮布印 (bark-cloth stamps) 並有較詳細的描述，他說：“這兩塊近於方形的硬陶，其一為灰色，另一為黃色，多是在海灘上拾得的，在兩塊面上有長方形的方格陽紋，但



插圖九 馬來亞發現的陶印模

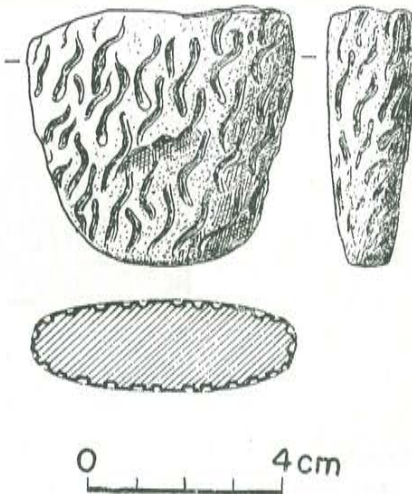
Fig. 9 a. b. two pottery tablets with cross hatching. c. pottery object with incised patterns, possibly a stamp; all from Kuala, Selinsing, Perak.

黃色一塊的方格紋幾乎磨平。從這兩塊陶板使人會聯想到在 Changkat Mentri 地方的石板墓中及半島的他處所發現的方格紋的樹皮布石打槌，以及 Sakai 族至今尚用以打樹皮布的方格紋的木打棒。這兩塊陶板是否裝柄，還不清楚；如裝柄用起來也不十分稱手，且也不够重量用作打槌。有一塊的背面有似松脂，樹膠或漆的黑痕，馬來人現尚用漆膠牢刀柄⁽²⁾。Evans 又說彫刻花紋的 c 陶器，也可能是陶印。

(1) Beyer, 1948, p. 60.

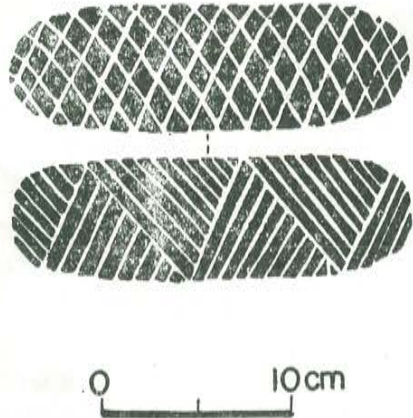
(2) Evans, 1928, p. 128.

中南半島 在高棉北部 Kompon Thom 省的 Mle Prei 地方亦出一塊陶印，如插圖十所示，殘長約 5.5 cm，Levy 氏對此陶器有較詳的描述說：“此一殘陶器的末端略扁平，兩面和兩側都深刻有一列的斷形或雙螺線的花紋。它不像是印陶器用的，因為在出土的幾百塊陶片中沒有印上這種花紋的。它可能用於印人身花紋（如美洲的 pintadera）或是印刷樹皮布用的，因此樹皮布上用木或石的打棒印有簡單的幾何形花紋”。還有一塊陶印藏在百囊奔的 A. Sarraut 博物館，未註明其出處，如插圖十一所示為此陶印的兩面的花紋⁽¹⁾。



插圖十 高棉的陶印模

Fig. 10 Pottery tablet from Cambodia.



插圖十一 高棉的陶印模

Fig. 11 Pottery tablet from Cambodia.

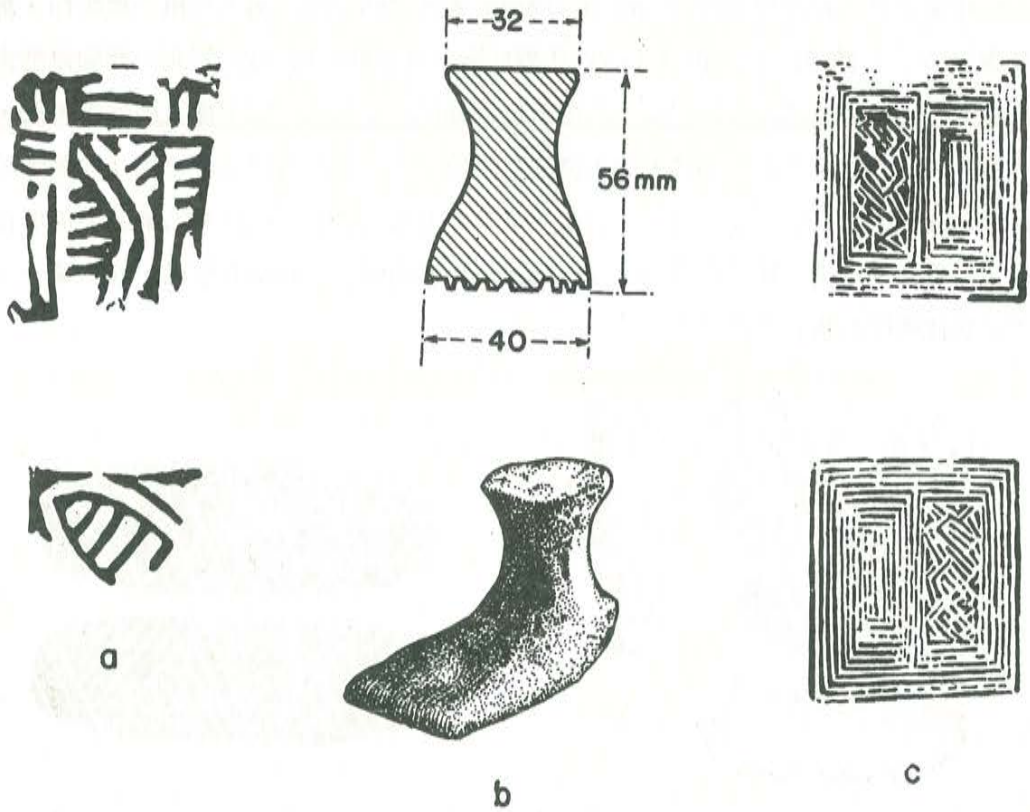
在老撾的 Cammon 省 Th'a Khêk 地東北十三公里半的 Ban Khwan Fá Vang 岩蔭下發現大小兩塊陶印殘片(插圖十二 a)，大的一塊長 5.5 cm；又一陶印(插圖十二 b)，老撾人以為很古的官印。在 Tuyen-quang 省 Ch'ien hoa 州 Dong Da mo 地方找到蠻族巫師手鈔本印有陶印印章(插圖十二 c)⁽²⁾。

華南 在福建長汀河田新石器時代遺址中發現陶印，如圖版柒 A 所示，據原報告稱：“陶印十八個，都是方形扁塊如小磚狀。完整以及殘缺的各一半。花紋有一面的，也有二面以上的。都曾經燒過。上面的花紋和陶片的飾紋相同”⁽³⁾。惜未詳尺寸。

(1) Levy, 1943, pp. 42-43.

(2) Colani, 1933, pp. 352-355.

(3) 林惠祥, 1957, p. 40.



插圖十二 老撾的陶印模及陶印

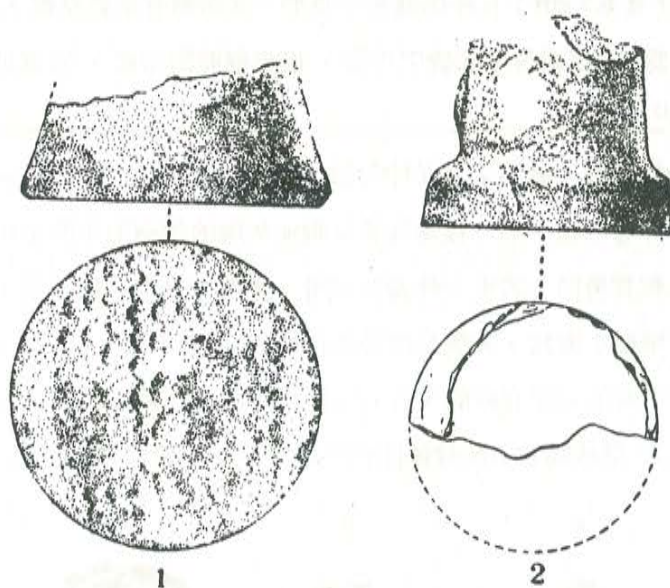
Fig. 12 Pottery stamps and tablets from Laos.

又在福建省福州市郊北面湖前鄉的浮村遺址，發現陶拍和陶工具，插圖十三：1 為陶拍，據原報告稱：“柄殘缺，僅剩拍印部份。夾砂粗灰陶，陶質較鬆軟。拍作圓形，印繩紋。殘高3 cm，直徑6.2cm。插圖十三：2 為製陶工具，原報告稱：“二件，均夾砂粗紅陶，柱狀。較大的，殘高10.5，柱徑 7.5，底徑 10 cm；較小的，半空心，殘高11cm，柱徑 6.6cm，底徑 7 cm。這兩件遺物，以前在雲石山也出土過，均不明其作用，最近我們在南安發現一窯址，採集有類似遺物，與其比較，知其為製陶工具”⁽¹⁾。

華中 係指長江流域而言，在此地區已發現的陶印，如插圖十四所示安徽肥東大城頭出土新石器時代的陶印⁽²⁾。共兩件：a 件作橢圓餅狀，表面劃有不規則的方格

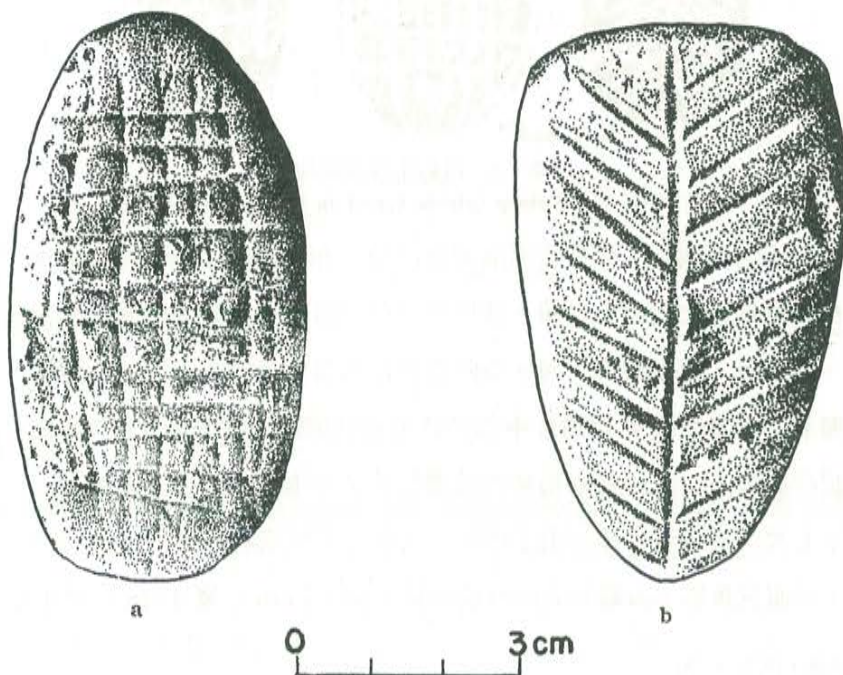
(1) 曾凡，1958, p. 24.

(2) 胡悅謙，1957, p. 27.



插圖十三 福州浮村出土的陶拍

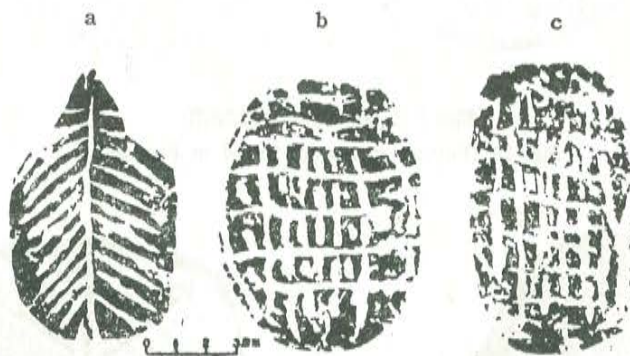
Fig. 13 Pottery pounders found in Fuchow.



插圖十四 安徽肥東大城頭出土的陶印
Fig. 14 Pottery tablets from Anhwei.

紋，長 10.5 cm，寬 5.2 cm；b 件作鈍角三角形，表面劃有葉脈狀紋，長 7.6 cm，寬 4.5 cm。安志敏說：“原報告中未說明用途，但也絕非陶印模，因遺址中並未發現此類花紋的陶片”⁽¹⁾。

在南京鎖金村遺址，發現了十五件陶拍，據原報告稱：“是陶工具中比較突出的一類器物，其形計有三種。第一種是泥質紅陶或灰陶的帶柄的半圓形拍子，柄有實心和帶孔的；第二種質料同，其中一件表面光滑，背部有突起的握手處，另一件正面有羽狀紋，背部有兩個小圓窩，大概是便於指拈用的(插圖十五 a)；第三種是粗砂質的橢圓形泥餅狀物，有的一面有紋飾，有的兩面有紋飾。其紋飾包括大方格紋和凹點紋等(插圖十五 b, c)。這些陶拍上的紋飾除凹點紋外，在泥質印紋陶上都可以看到”⁽²⁾。



插圖十五 南京鎖金村的陶印

Fig. 15 Pottery tablets found in Nanking.

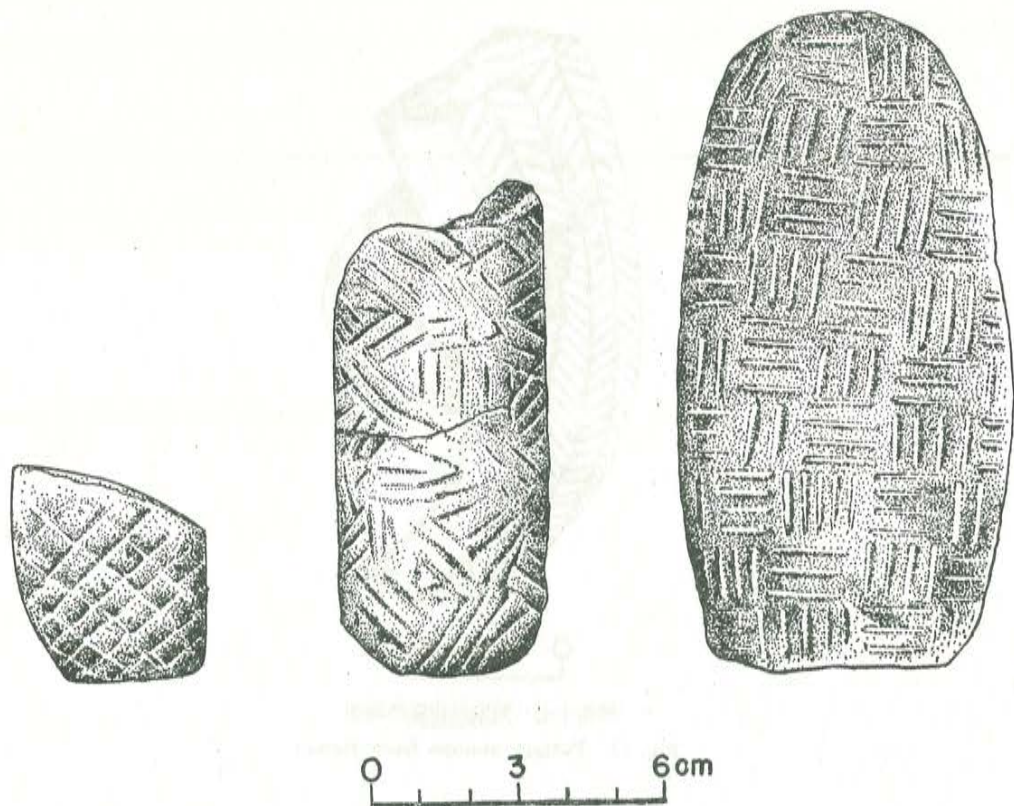
華北 本文所謂華北，係指黃河淮河兩流域。在此地區，如插圖十六所示為江蘇淮安青蓮崗新石器時代遺物的陶印。據原報告稱：“這四件陶器的泥料中都屬有細砂，硬度很強。磚紅色，深淺略有不同。我們推想這類器物或許是在陶坯上壓印花紋的工具，因此暫名之為陶印模。但遺址中却始終未見到這類印紋的陶片”⁽³⁾ 這四件標本作圓柱形或扁平橢圓形，表面有縱橫交錯的溝狀紋。其中一件背面是有柄的。

插圖十七為河南永城造律台出土的陶印，龍山文化遺物。據原報告稱：“泥刀形器，一件，平面三角形，尖端漸向內彎成弧線，長 7.7 cm，寬 4 cm，厚 1.4 cm，正

(1) 安志敏，1957，p. 70.

(2) 尹煥章，1957，p. 24.

(3) 趙青芳，1955，p. 17.



插圖十六 淮安青蓮崗出土陶印模

Fig. 16 Pottery tablets unearthed in Huai-an, Kiangsu.

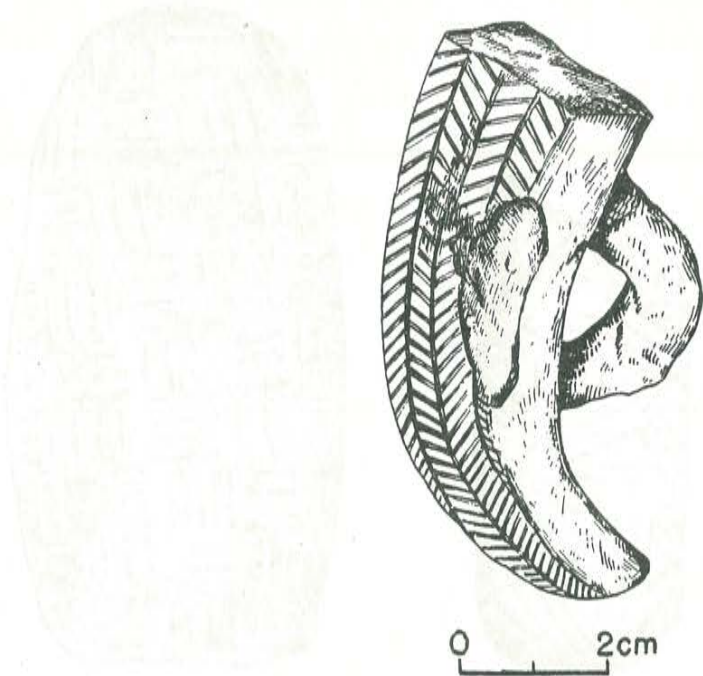
面滿佈葉狀紋，背面有直鼻可捏，很像是陶印，但沒有見到此類印紋的陶片，或為玩具⁽¹⁾。

同上形制的陶拍，徐州高皇廟遺址中發現更多。如圖版柒：B所示，據原報告稱：“陶拍、形制有似菌狀的，背面有柱形的柄，末端有孔；有餅狀形帶柄的。另有一種印紋陶拍，灰陶質，體作長方形或三角形，拍面成半弧狀，上面刻劃着蕨紋或人字的紋飾，背面有陶紋的環形把。這類陶拍共得八件”⁽²⁾。高皇廟遺址的文化層，下層是龍山文化，中層文化是屬於殷商時期的，陶拍發現於中層的。本遺址中不論中層及下層出土的陶器上，均未見印有陶拍的花紋。

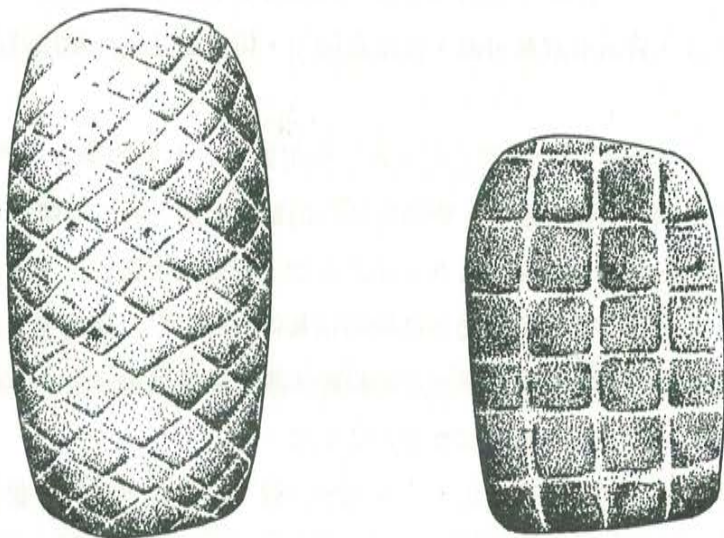
河北石家莊市莊村戰國遺址中亦發現陶印模，據原報告稱：“根據器形之不同，

(1) 李景昉，1947，p. 104.

(2) 謝春祝，1958，p. 12.



插圖十七 河南造律臺的陶印
Fig. 17 Pottery stamps from Honan



插圖十八 石家莊市莊村出土的陶印模
Fig. 18 Pottery tablets from Hopei.

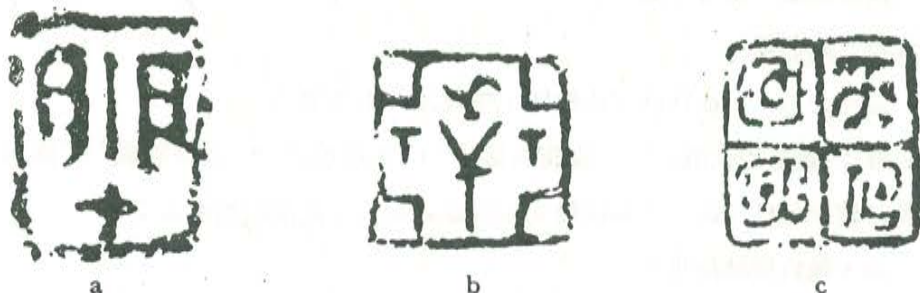
可分為磨菇形、覆盆形、橢圓形或長方形等。有的在器面上印有方格、斜方格（插圖十八）、斜線加點等陰刻紋”⁽¹⁾。

又在鄭州商代銘功路遺址中，共發現窖址十四座。窖址附近的灰坑很多，……其中有製陶器的工具陶拍子及印製花紋的陶印模子，有回紋、斜方格紋、夔紋等文樣（圖版柒C, D）⁽²⁾。

以上所描述中國及東南亞的陶印模，其用途：一、陶印與其同出土的陶器花紋相同者，如圖版捌所示，杭州老和山出土的陶甑和陶拍⁽³⁾，為陶器花紋拍子或印模；二、陶印花紋與其同出土的陶器花紋不相同，則為印刷樹皮布文飾的陶印板，因印紋陶與樹皮布兩種文化，在東南亞各地，同時並存的。

三 璽印用於印布印木印陶印泥

在一九二五年，卡特氏出版他的名著中國印刷術發明及其西傳一書，該書第二章專論印章，卡特認為印刷的起源，是由印章來的。他指出印章之印，印刷或印書之印，中文用同一個字，可以闡明中國印刷術的來源。又卡特頗疑中國印章的使用，可能是受希臘的影響，因在秦始皇統一天下以前的一百年時，亞歷山大的勢力已達到中亞及印度⁽⁴⁾。卡特氏以璽印為印刷術之先河，自屬正確；但他以中國使用印章是受希



插圖十九 雙劍 古器物圖錄所收商璽
Fig. 19 Seals of Shang Dynasty.

- (1) 孫德海，1957，p. 90.
- (2) 趙全古，1957，p. 57.
- (3) 蔣繼初，1958，pp. 13-14.
- (4) Carter，1955，pp. 11-12；李書華，1958，pp. 88-89.

臘的影響，李書華氏則不以爲然，他說：“吾人以爲印章爲中國固有的發明，絕無可疑。在秦始皇以前約一千年中國已有印章，而且周代已頗普遍適用，絕無受外來影響的可能”⁽¹⁾。他並引于省吾雙劍謬古器物圖錄載商殷三銅璽摹本，如插圖十九所示：a, b 璽爲陽文，c 璽可能是陰文，b 璽的印文可能爲武丁時名將隼。

以上三璽，董作賓氏於一九五三年出版的中國歷史參考圖譜及胡厚宣氏一九五五年出版的殷墟發掘，均曾收入。但此三器都來自古商之手，據云殷墟發掘所得，其出土情形不詳，不敢確言其必爲商器。然商代陶器上，有輓拍與印壓的花紋⁽²⁾，並有印壓的陶印；又鑄銅技術已很進步，鑄造銅印確有可能。

至周代用璽已頗普遍，見於文獻者，有左傳哀公二十九年：

公（襄公）在楚，還及方城；季武子取卞，使公冶問，璽書追而與之。

周禮，地官司徒：

掌節，貨賄用璽節。注璽節，印章。

周禮，秋官司寇：

職金掌凡金玉錫丹青之戒令，受其入征者，辨其物微惡，與其數量，揭而璽之。鄭注：璽者，印也。

莊子外篇，胠篋：

焚符破璽，而民朴鄙。

呂氏春秋，孟冬紀

孟冬之月……戒門閭，修榱閉，慎關籥，固封璽。

上舉五條：“璽書追而與之”，“貨賄用璽節”，“揭而璽之”，“焚符破璽”，“固封璽”觀之，對於璽印如何用法，不易明瞭。古代璽之功用，許慎說文有云：

印，執政所持信也。

照許氏之說，印係執政者所持有的信物，此僅指官印而言。漢蔡邕獨斷有云：

璽者印也，印者信也；古者尊卑共之。

蔡氏則言“尊卑共之”，即除官印外，私人或平民亦有印。後漢書卷十九，祭祀志下：

(1) 李書華，1958，p. 89.

(2) 李濟，1956，pp. 116-117.

自五帝始有書契，至於三王，俗化雕文，詐僞漸興，始有印璽，以檢奸萌。由上所錄，可見印的功用，即所謂‘印者信也’，‘以檢奸萌’。

至於印璽的材料，漢衛宏漢舊儀載：

秦以前皆以金銀銅犀象爲方寸璽。

今世所流傳周秦以來的古璽，其尺寸，材料，書體等項，羅振玉氏論述較詳，茲錄之於下：

證以今世所流傳周之私璽，大不逾今尺一寸之半，即古所謂方寸也。其材有犀有象有石有陶，而銅製者百之九十九。其官璽大者，倍於方寸或再倍數倍之。其材銅爲之或以玉偶有鐵者，千百中不一二見也。其書體與古文或異。其制或方或圓。方者爲壇鈕，圓者蟻鼻鈕。文字皆以範鑄以成之。多朱文其白文什一二而已。白文中偶有出自刻畫者，此秦以前之制也。

秦人印大小同於周，有半方印，皆白文，刻畫以成之。其書體與傳世權量銘同。許祭酒謂秦書有八體，五曰摹印，今以秦印傳世者證之，未見有殊體，如有周官私璽者也。此爲周秦璽印之別，今之譜錄家，則每混周之璽爲秦，秦之印爲漢矣。

漢之私印，西京初紀，大小同秦，寢以增大。至東漢有與官印等者。其鈕初爲壇鈕，後爲橋鈕，又後爲獅鈕，朱文長印有槪鈕，始有兩面印，有五面印，或刻於觸於師比。其材皆以銅，或以玉以象以角以漆以鉛以土以燒材以石膏，然亦千百中一二遇而已。官印之材或以金以塗金，然不盡如史家所記有定制也。其文字初承先秦而日趨方正，……⁽¹⁾。

上錄周秦漢三代的印制雖詳，然不及使用之法，蓋用印於布帛，或烙印於竹木，布帛與竹木均易於腐朽，今存之遺物罕見。由文獻與遺物上可見古代璽印用於印布帛，印木，印陶與印泥。

印布 如周禮載師：

宅不毛者，出里布。鄭司農注云：布參印書，廣二寸，長二尺以爲幣，貿易物。

(1) 羅振玉，1915，pp. 1-2.

孫詒讓曰：

此說里布爲印布帛之布，布參印書，蓋謂書布上而加璽印，此殆爲後世楮幣之所自昉。

至於里布是否爲布帛之布，亦無確證，鄭司農後漢時人。‘布參印書’之布，或可能爲陸璣詩疏所稱的穀布或穀布紙。

印木 施印於木器上的遺物，有出土戰國時期長沙市郊左家公山和楊家灣的兩座木槨墓中的漆羽觴，如圖版玖A爲左家公山第15號墓所出土四件羽觴之一，“羽觴係木胎，圓耳，朱地黑繪龍、鳳、鳥紋”。又楊家灣第六號墓亦出土羽觴二十件，“羽觴有圓耳、方耳兩種。觴內爲朱色，邊緣部份及耳上繪有朱色幾何形花紋，每個底部中央都打有戳印”（圖版玖B）⁽¹⁾。據報告未說明‘打有戳印’的方法。觀其遺物的照片似用烙印法。

上述楊家灣六號墓出土廿件羽觴底部都打戳印，此蓋呂氏春秋卷十孟冬紀所云：“物勒工名，以考其誠”。勒銘工姓名著於器，使不得詐巧。

印陶 在戰國時代的陶器上的印陶陶文，亦多是勒銘工匠的姓名及里居等項。殷商時代陶器上的文字由刻畫而成⁽²⁾，至戰國時的陶文多數由於壓印，如李學勤氏有云：

齊陶器題銘絕大多數是用印璽印成的，而少數銅器（如左里斂罍）也採取印文的形式。有的璽印不但有文字，而且有花紋部份，他其實也就是范。這種璽印一般不稱爲璽⁽³⁾。

如插圖二十所示：A爲陶鉢，文曰“鄭陽”，“陳得四”⁽⁴⁾，此陶印上的文字，刻的是反文；B爲陶文，文曰：“平陵，陳得，丕□王釜”⁽⁵⁾，這是陶器上壓印而成的陶文；C亦爲陶文，文曰：“鄭陽，[陳]得參”⁽⁶⁾。上錄陶印和印文中的陳得，據李學勤氏的考證，是齊宣王時人⁽⁷⁾。

又齊國的陶器，亦如呂氏春秋所說‘物勒工名’，多記有製造者的籍貫和姓氏。如

(1) 吳銘生，1957，pp. 100-101.

(2) 李濟，1956，pls. 61-63.

(3) 李學勤，1959，p. 52.

(4) 周進，1943，p. 111: 4.

(5) 周進，1943，p. 80: 1.

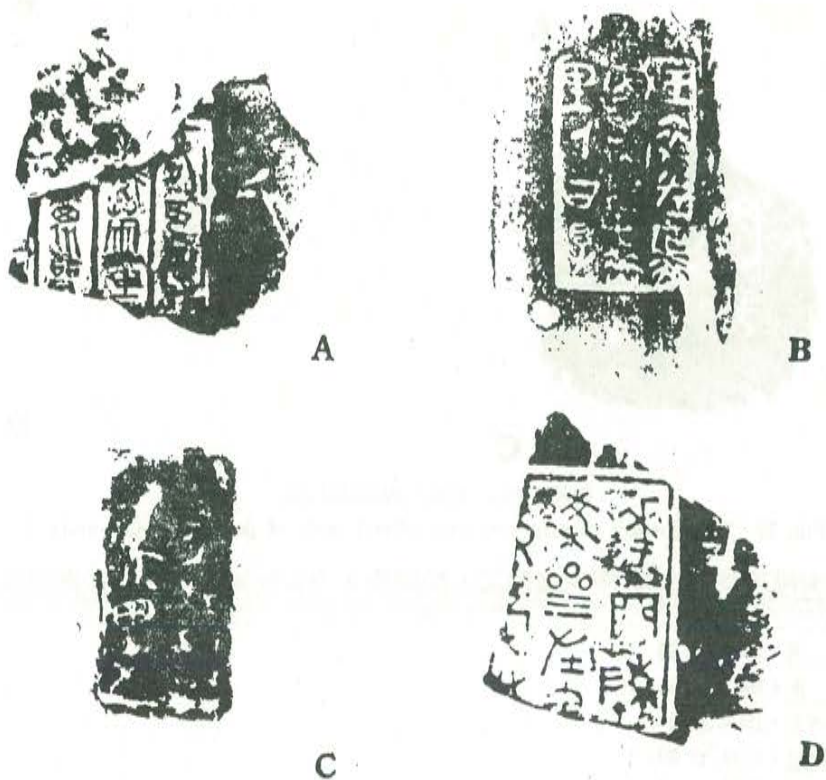
(6) 劉鐵雲，1904，p. 69: 4.

(7) 李學勤，1959，p. 53.



插圖二十 戰國時代的陶鈔和陶文

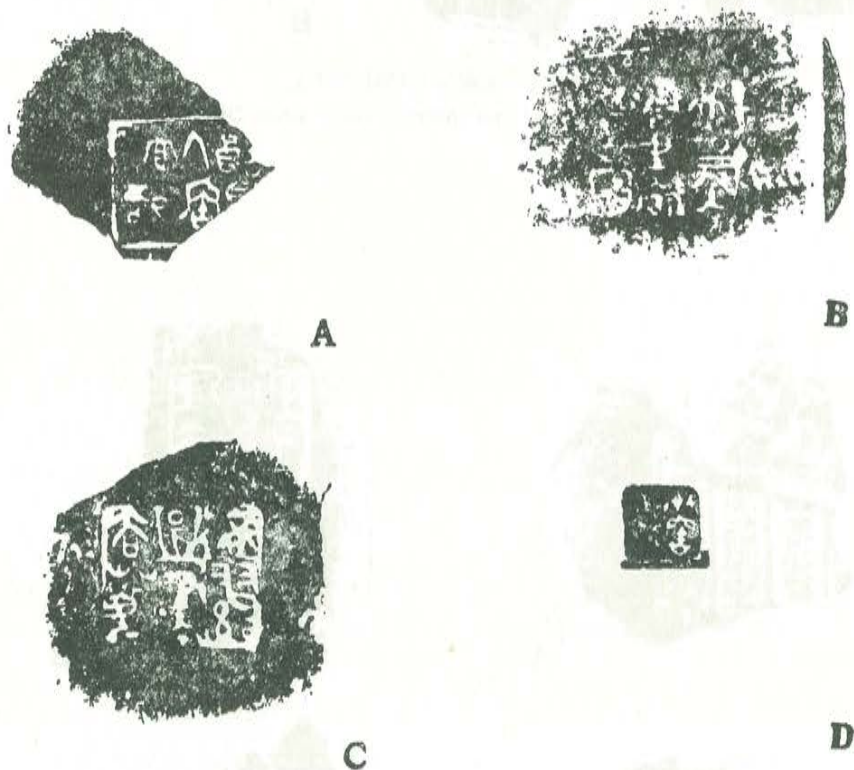
Fig. 20 Pottery seal and inscriptions of Chou Dynasty.



插圖二十一 齊國的陶文

Fig. 21 Pottery inscriptions of Chi State.

插圖二十一所示：A 陶文曰：“右攸鄒里眾”⁽¹⁾；B 文曰：“王卒左[攸]城場
 □里人曰得”⁽²⁾；C 文曰：“王卒左攸□陽北里五”⁽³⁾；D 文曰：“華門，陳稜參，左里
 攸，臺區”。上文中的‘王卒’，或可能解作王的兵卒。‘左右攸’，說文：攸與伯通，按
管子輕重戊篇說：令謂左右伯“沐塗樹之枝”，又說：“令左司馬伯公將白徒而鑄錢于
 莊山，均指左右攸。至漢代可視為左右作部，城陽是故莒國地，‘南里’北里’是里的名
 稱，又如插圖二十二所示：A 文曰：酷人陶尙部⁽⁴⁾；B 文曰：“穰陽南里陶尙其”⁽⁵⁾，



插圖二十二 齊國的陶文與陶正印

Fig. 22 The pottery inscriptions and official seals of pottery of Chi state.

C 文曰：“去穰陽里陶尙繆”⁽⁶⁾。製陶工人稱陶尙，主管製陶手工業的官吏稱為陶正，

(1) 周進，1943, p. 80: 7.
 (2) 周進，1943, p. 60: 10.
 (3) 劉鐵雲，1904, p. 1: 4.
 (4) 劉鐵雲，1904, p. 82: 4.
 (5) 周進，1943, p. 57: 1.
 (6) 劉鐵雲，1904, p. 25: 4.

D 爲一鈕璽印文爲齊陶正顯⁽¹⁾。

今日已發現的陶文多七國的地方文字，不能辨者略多於識者。有的幾是花紋符號，如插圖二十三所示，爲古陶文叢錄附編所收的陶文，皆爲花紋符號不能稱爲文



插圖二十三 古陶文叢錄所集的花紋或文字

Fig. 23 Pottery designs and inscriptions collected in *Ku dao wen kai lu*.

字⁽²⁾。蓋印文陶器上，在製作陶坯時，用雕花陶拍，打拍成的花紋外，尙有小戳印壓印各種幾何形小紋樣，如圖版玖：C, D所示，爲廣州華僑新村西漢墓出土的陶片，據原報告稱：

幾何形印紋，係用刻有各種幾何形的小戳印，在器胚製成後，趁泥坯未乾時逐個打上，在整個器身上分行排列，有的行列很規整，也有不少是隨意打上，疏密參錯無一定的行次。這類印紋都係施於甕，罐的小方格紋之上，舉凡有小方格紋的甕和罐，差不多都有這種印紋，它與小方格紋配合，在裝飾上起着主紋的作用。所有這種印紋的圖案，不外是方、圓、長方、三角、菱形等幾種。統計在二百九十一件有這類印紋的甕和罐中，共發現有七十二種結構不同的圖案⁽³⁾。

又陶器上除打有圖案戳印外，亦打有文字戳印的如圖版拾A所示，據原報告稱：

印文共十一個，分出於七座墓中，均打印在甕和罐的肩腹間。印章均作方形，

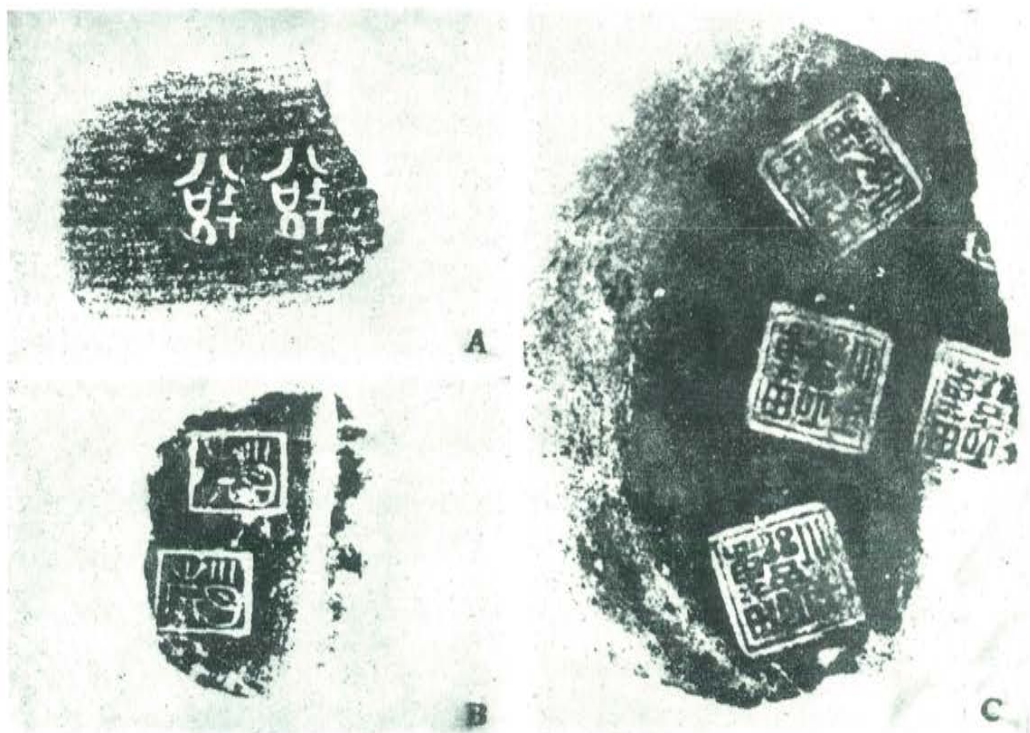
(1) 李學勤，1959, p. 52.

(2) 顧廷龍，1936, 附編 pp. 1-3.

(3) 麥英豪，1958, p. 47.

小篆體。計“公”字印四個(大小不同)，‘衆魚’二字印一個，‘藥’字印一個，‘居室’二字印三個(一個稍大，其餘兩個較小的，係從同一個印章打出)，‘常御’二字印和‘阿平’二字印各一個。此外在兩陶罐上遍印有‘千倉’或‘平倉’(?)^(?)字的戳印，這與上述的印記有所不同，主要是作為圖案花紋裝飾，取其吉祥之意⁽¹⁾。

這種在陶器上打文字戳印，在戰國時代盛行於中原，如圖版拾B所示為邢台曾演莊遺址出土戰國陶器上的文字戳印拓片⁽²⁾，及圖版拾C為河北武安午汲古城窯址出土的帶印記陶⁽³⁾，至西漢初年，這一在陶器上打印文化，已南傳至廣州，向東北發展至遼陽，如圖版拾D為遼陽三道壕西漢村落遺址出土的陶文拓片⁽⁴⁾，此一文字戳印文化，



插圖二十四 季木藏陶所收的重複陶文

Fig. 24 Pottery inscriptions doubly imprinted on the pots.

- (1) 麥英豪，1958，p. 51.
- (2) 唐青明，1958，p. 45.
- (3) 孟浩，1959，p. 340.
- (4) 李文信，1957，p. 119.

我們或可假設是由印紋陶上花紋戳印而來，他除有文字符號的功用外，同時亦為文飾，如圖版拾A在兩陶罐上遍印有‘平倉’二字的戳印；又圖版拾D的‘珥’字的戳印，在一器底亦打了五個印戳，在古匊文殘陶片中如插圖二十四所示，亦常發現這種重複的陶印文⁽¹⁾。

印泥 我們所謂‘印泥’即古之‘封泥’。今之中外⁽²⁾學者似乎以為古代的印璽專用於封泥，如王國維氏在簡牘檢畧考：

古人璽印，皆施於泥，未有施於布帛者。

王獻唐氏也說：

封泥之制，與璽印來，殷商無印，其時亦無封泥⁽³⁾。

屈萬里氏亦云：

古人璽印，皆施於泥，未有施於布帛者⁽⁴⁾。

此皆因古之璽印，用於封泥，見之於古書，如呂氏春秋卷十九，離俗覽：

若璽之於塗也，抑之以方則方，抑之以圓則圓。

又淮南子卷十一，齊俗訓：

若璽之抑埴，正與之正，傾與之傾。

上述的‘塗’與‘埴’係指封泥而言，在道光初葉，古封泥始出於巴蜀，其後長安亦有出土，而山東之臨淄與鄒縣續有出土者，而以臨淄所出為最多。印泥印文以官印佔多數，故十九不見於傳世印章，羅振玉氏言二者之別如下，他說：

時劉君（鐵雲）方編輯所藏古璽印為譜錄，予舉沈存中之說告之曰：古印章多軍中官古之佩章，罷免遷死皆上印綬，土中所得多是沒於行陳者，其言至確。故封泥所鈐，十九不見於傳世印章，其可貴更過於璽印，且質脆不任傳拓，盍亟謀所以傳之。劉君聽予言，至甲辰春乃附印於鐵雲藏陶之後，於是封泥始有專書⁽⁵⁾。

(1) 周 遵，1943, pp. 2: 12, 23: 4, 79: 4.

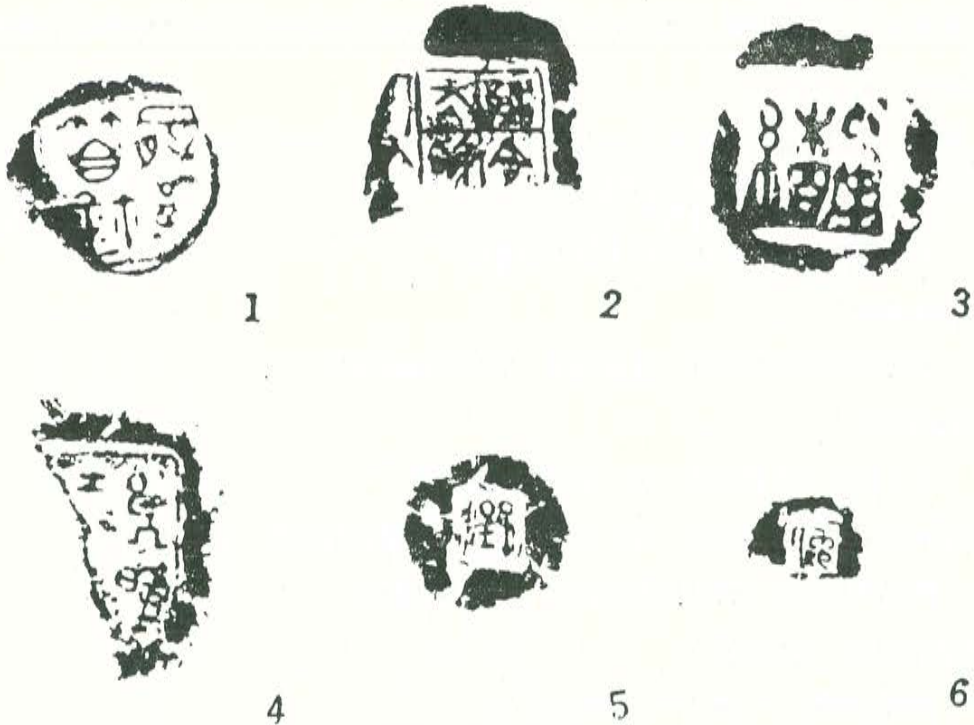
(2) Carter, 1952, p. 11.

(3) 王獻唐，1936, p. 76.

(4) 屈萬里，1953, p. 18.

(5) 羅振玉，1913, pp. 5-6.

今日已發現的封泥遺物，周秦兩代的遺物少見，而以漢代為多，如插圖二十五為周璽封泥：1. 驪函管鈔，2. 郟令太飲，3. 甬緒，4. 鳧興江(下殘)，5. 子涅，6. 佗。(1)



插圖二十五 周璽封泥

Fig. 25 Sealing clays of Chou Dynasty.

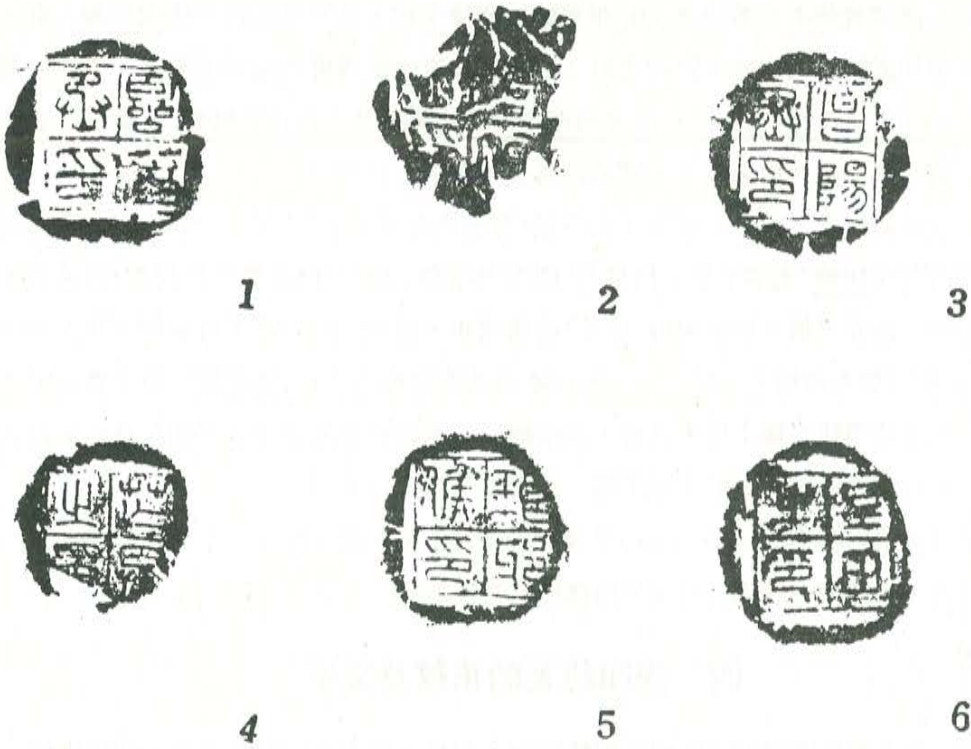
插圖二十六為秦官印封泥，其印文：1. 臨菑丞印，2. 臨朐丞印，3. 昌陽丞印，4. 芒丞之印，5. 琅邪侯印，6. 左田之印(2)。以上“封泥印文，皆有闌格，為嬴秦印式，其制出於有周，周璽初無闌格，繼刻邊闌，後於中作直界，又後加刻橫線，遂成四格。秦代官印，襲用舊式，無不具有闌格……。”(3)

漢代的封泥如插圖二十七所示：1. 璽文曰：皇帝信璽，信璽，漢帝發兵徵大臣所用也；2. 印文曰：丞相之印章。掌丞天子助理萬機(4)。3. 璽文曰：河間王璽，漢書地理志河間國故趙，文帝二年別為國；4. 印文曰：趙相之印章，漢書地理志，趙國故秦邯鄲郡，高帝四年為趙國(5)；5. 印文曰：曲逆侯印，漢書地理志中山國，在今河北定縣

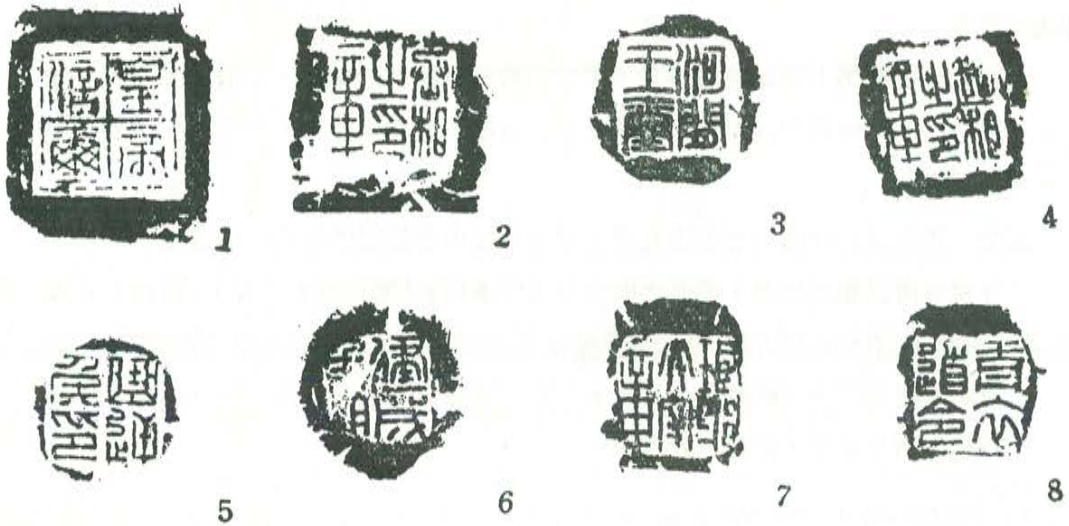
(1) (2) (3) 王獻唐，1936, Vol. 1, pp. 1-3.

(4) 吳式芬、陳介祺，1904, Vol. 1, pp. 3-5.

(5) 吳式芬、陳介祺，1904, Vol. 2, pp. 1, 5.



插圖二十六 秦官印封泥
 Fig. 26 Sealing clays of Ch'in, Dynasty.



插圖二十七 漢代的封泥
 Fig. 27 Sealing clays of Han Dynasty.

縣之間，漢高封陳平爲曲逆侯：6. 印文曰：建成侯相，按漢書地理志建成縣屬沛郡，史紀高帝紀彭越封建成侯；7. 印文曰：琅邪太守章，按漢書地理志琅邪郡，秦置，屬徐州；8. 印文曰：青衣道令，漢書地理志青衣道屬蜀郡；百官公卿表：縣令長皆秦官，掌治其縣，萬戶以上爲令，減萬戶爲長，有蠻夷曰道⁽¹⁾。

上述印的用處，其印木印陶印泥三種，有遺物爲證，可無疑問；唯印布，無遺物可證，鄭司農注周禮‘宅不毛者，出里布’謂布參印書，廣二寸，長二尺以爲幣，貿易物，言之有物，當亦可信。作者懷疑‘里布’或爲穀布，因‘宅不毛者’，可解作不生五穀之地，出穀樹可製布或稱穀布紙。古代除印布外亦有印於帛者，王國維簡牘檢畧考有云：

惟漢時門關之傳；用木之外，兼用繻帛。漢書終軍傳關吏予軍繻，是也。傳皆封以御史印章。則繻亦當用印、或竟施於帛上，亦未可知。

中國早已用帛爲書寫的材料，王氏假設施印於帛上，當屬可能。由上的研討，印施用之處有五，決非如一般學人所說的印僅用於封泥而已。

四 模印磚瓦的花紋及文字

我們在上文已研究過古代印璽用於印布，印帛，印木，印陶及印泥，皆印刷術之先河，蓋璽之鈐拓與雕板印書，在技術上不過一間之差耳。至於模印瓦當與甃磚的花紋及文字，爲雕板印泥，在技術上完全同於雕板印書，其不同者爲所印之物一印泥一印紙而已。

中國古代在建築上開始使用磚瓦，現在根據考古發掘的知識，知道瓦先發現，磚比瓦要晚一些⁽²⁾。由於印泥與印陶的技術早已發明，故在磚瓦上亦印花紋作文飾，或印文字以紀事。

瓦當 羅振玉氏在他所著秦漢瓦當文字的序文中有扼要的敘述，他說：

瓦當者所以施之簷際，其名之明記于文字者曰瓦(都司空瓦之類)，曰當(八風壽存當，宗正官當之類)曰當(長陵東當之類)，曰箒(麀氏冢箒之類)。其端或記宮觀殿闕陵廡關倉之名，或箸吉語，或圖寫物象，官私上下得通用之。其時代則始于周秦，而訖于六代⁽³⁾。

(1) 吳式芬、陳介祺，1904, Vol. 2, pp. 34, 38; Vol. 3, p. 39; Vol. 5, p. 22.

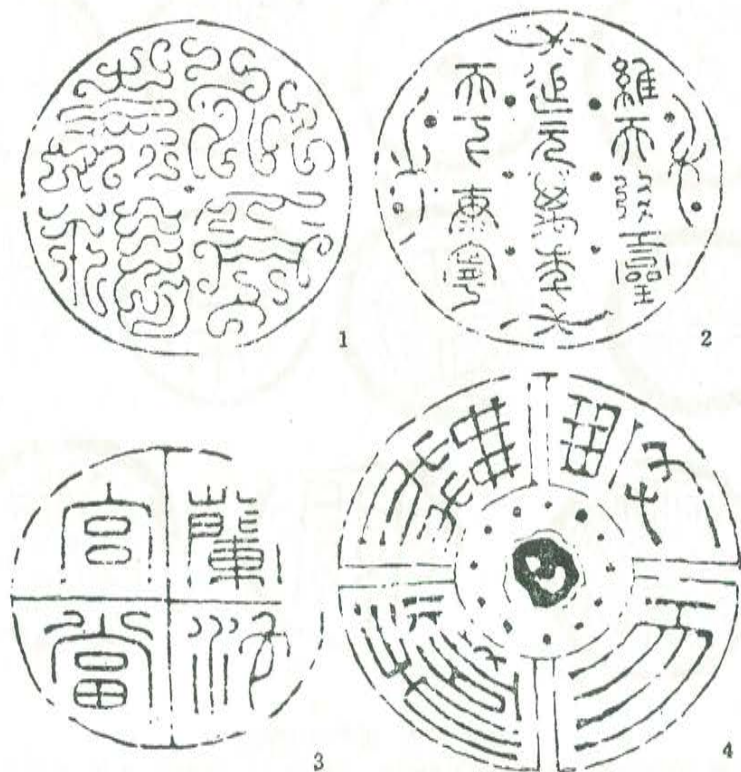
(2) 曾 厝，1959a, p. 629.

(3) 羅振玉，1914, p. 1.

瓦當之端亦先模印花紋而後有文字，如曾庸氏說：

戰國的半瓦當上，盛行着印上饕餮紋或人物鳥獸紋作為裝飾的，到西漢時漸以文字來代替圖畫⁽¹⁾。

曾氏之言未盡確當，戰國的半瓦當上，是有印着饕餮紋的如易州出土的燕瓦（圖版拾叁A）⁽²⁾，至於有人物鳥獸紋的半瓦和全瓦當，其時代有上自秦漢而下迄魏晉者。如圖版拾壹所示：1. 朱鳥瓦，2. 鳳瓦，3. 雙虬瓦，4. 比肩獸瓦，5. 上異獸半瓦，下雙麋半瓦，6. 上人鹿半瓦，下人鹿半瓦，7. 畫瓦，8. 畫瓦⁽³⁾。瓦當上的花紋，以文字來替圖畫，亦不始自西漢，周秦時已有之⁽⁴⁾，如圖版拾貳所示：1. 奇字瓦，2. 幹簪□□



插圖二十八 秦代的瓦當

Fig. 28 Inscribed eaves-tiles of Ch'in Dynasty.

(1) 曾庸，1959b, p. 676.

(2) 關野雄，1952, pls. 1, 4.

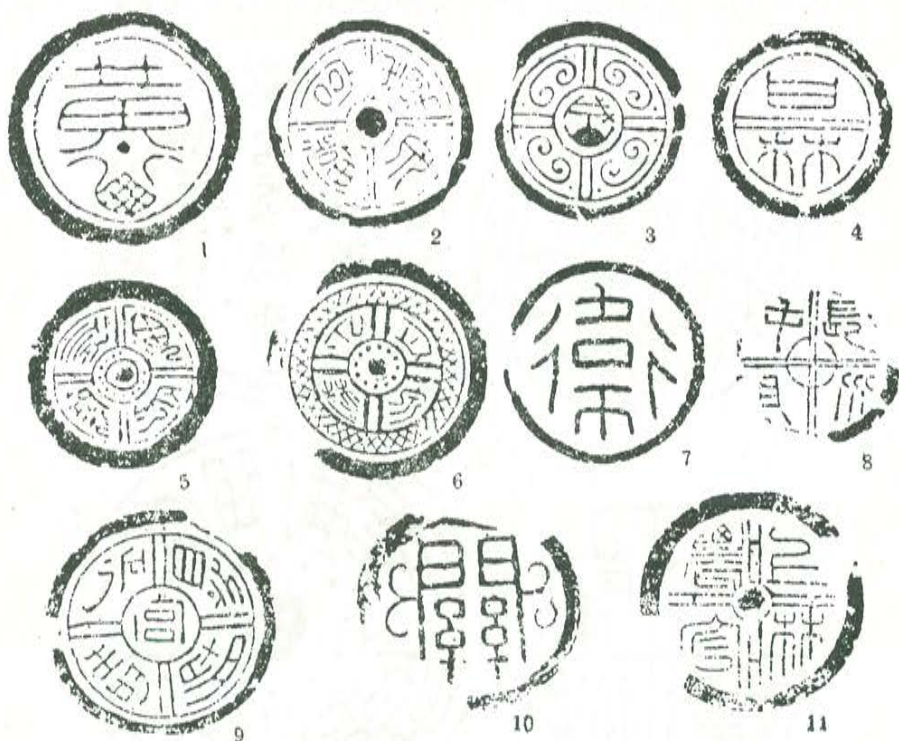
(3) 羅振玉，1914, v. 4, pp. 2-16.

(4) 關野雄，1956, p. 514：有一齊之半瓦當上，有「大觀」二字。

瓦，3. 羽陽臨渭，4. 羽陽萬歲。以上四瓦，據羅振玉氏說：

羽陽宮作于秦孝公，則羽陽諸瓦實當周之晚季。又有古奇字諸瓦，文字古異，其非嬴劉以後之物，可知也⁽¹⁾。

至秦時的瓦當，金石索石索六所載，如插圖二十八所示：1. 維天降靈，延元萬年，天下康寧，涵真閣秦漢瓦當圖說：近時土人得之阿房宮故基；2. 永受嘉福，其文似秦璽，故定名為秦瓦；3. 蘭池宮當，蘭池宮在咸陽縣東二十五里，4. 與天無極，秦有極廟象天極，此疑即極廟之瓦。



插圖二十九 西漢時代的瓦當

Fig. 29 Eaves-tiles impressed with inscriptions and designs of Western Han.

西漢宮殿與官署的瓦當，現存者甚多，如插圖二十九所示：

1. 黃山宮瓦，據漢書槐里條班注：“有黃山宮，孝惠二年起。”
2. 橐泉宮當，漢書地理志右扶風雍條班注：“橐泉宮孝公起”，漢代有的宮苑仍

(1) 羅振玉，1914，p. 1.

用秦宮舊名。

3. 成山觀瓦，三輔黃圖有成山觀。
4. 甘林瓦當，程敦績秦漢瓦當文字有云：“秦林光宮作於甘泉，故以甘林銘瓦歟？或云甘林即甘泉上林省文亦通，甘泉上林見後。”
5. 長陵西神，羅振玉唐風樓秦漢瓦當文字作長陵鹵神瓦，吳大澂憲齋專瓦錄則作長陵西神，並云：“漢書王莽傳葬妻墓渭陵長壽園西，此長神西神當，即長陵西園之瓦，乃高后之陵寢也；惟長陵東堂，則向所未見。”
6. 甘泉上林秦漢瓦當文字續云：“甘泉上林，出淳化，考漢百官表云：水衡都尉，掌上林苑，屬官有上林，均輸，洎甘泉上林等長、丞皆屬焉。”
7. 衛字瓦當 程敦秦漢瓦當文字卷下：“考漢百官表，衛尉秦官，掌宮門衛屯……據此則衛字瓦當，即衛尉寺瓦也。”
8. 長水屯口 漢書百官公卿表：“長水校尉，掌長水、宣曲胡騎”。長水是地名，漢書劉屈氂傳顏注：“今鄠縣東長水鄉，即舊營校之地。”
9. 鼎胡延壽 三輔黃圖：“鼎胡宮在藍田……漢武帝於此建宮。”
10. 關字瓦當 據羅振玉說：“關字瓦皆出河南新安。”曾庸解釋說：“可知這些瓦大都還是漢武帝元鼎三年（前114年）將函谷關從弘農遷至新安的所謂新關所用的瓦當了。”⁽¹⁾
11. 上林農官 漢書百官公卿表有水衡都尉，其下有七官，上林農官可能是一官。

甃 根據近年考古發掘，在戰國的遺址中發現有空心甃和大甃，此為用甃之始，至漢其用漸廣。日人關野貞在他所著秦漢瓦磚集錄以甃的形制分為普通甃，大甃，空甃三類。甃的名稱，自漢至六朝間，有甃甃，甃甃，甃，甃等名，茲分述之。

1. 甃甃 西漢人稱甃為“甃甃”，也作“令甃”或“令辟”，如司馬相如的長門賦有云：“綴錯石之甃甃兮。”此甃甃後又簡稱為甃為甃或甃，如插圖三十所示：吳大澂憲齋甃瓦錄著錄的漢甃：霸陵過氏玲⁽²⁾，至於甃，如插圖三十一：1. 為陸心源千甃亭古甃圖釋卷三：吳“鳳凰三年，施氏作甃”，上端“富貴”二字⁽³⁾。又甃如插圖三十

(1) 曾庸，1959, p. 678.

(2) 吳大澂，1919, p. 11.

(3) 陸心源，1891, v. 5, p. 13.



插圖三十 漢霸陵過氏甃

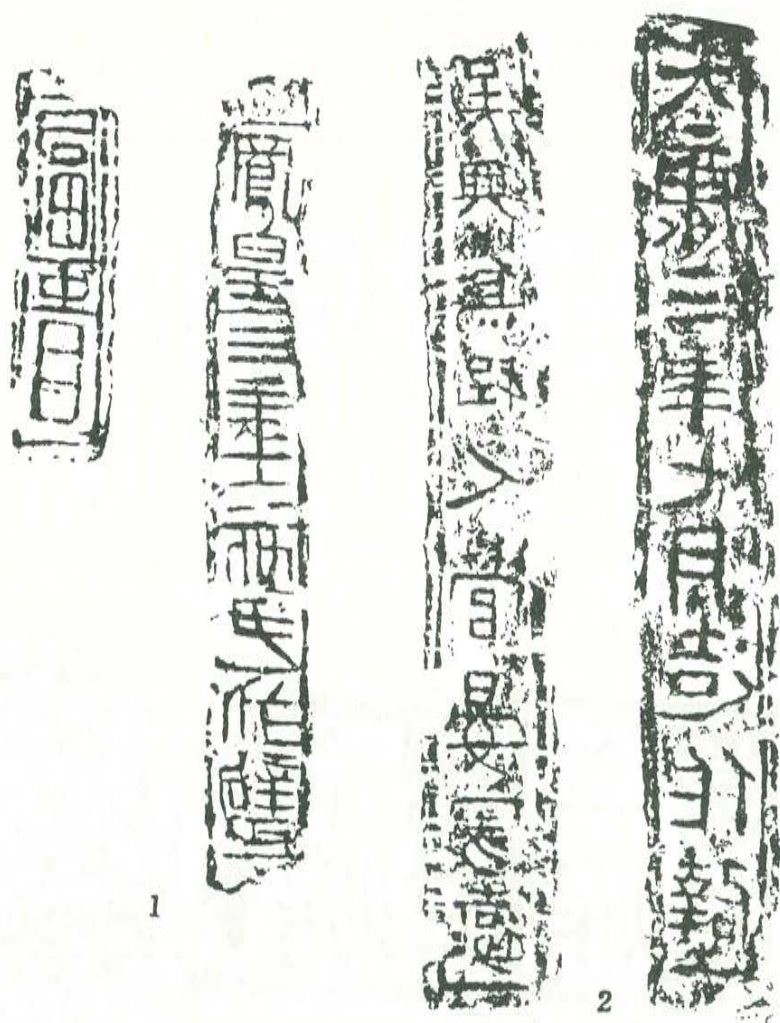
Fig. 30 Pottery brick of Han Dynasty

一：2. 同書卷四：左側文曰：「晉」太康三年七月，造作壁；右側文曰：「吳興烏程人管晏冢」；皆反文⁽¹⁾。

2. 甃 甃：「甃，大塼」。通俗文：「狹長者謂之甃塼，塼方大謂之甃」。方塼出現較早，河北易縣燕下都遺址中曾發現過。西漢時方塼用來鋪地或鋪墓室。如西安西郊的西漢建築遺址，其散水部分是用方磚鋪成的⁽²⁾。西漢的方塼有平面

(1) 陸心源，1891, v. 5, p. 11.

(2) 曾凡，1959, p. 630.



插圖三十一 吳晉的甕與壁

Fig. 31 Pottery bricks of Wu and Chin.

的；有粒狀面的用鋪斜坡路面；也有幾何紋圖案或帶文字的⁽¹⁾(插圖三十二⁽²⁾)；方磚有空心的(插圖三十三⁽³⁾)；圖版拾叁：D, E⁽⁴⁾)，鋪於墓室。

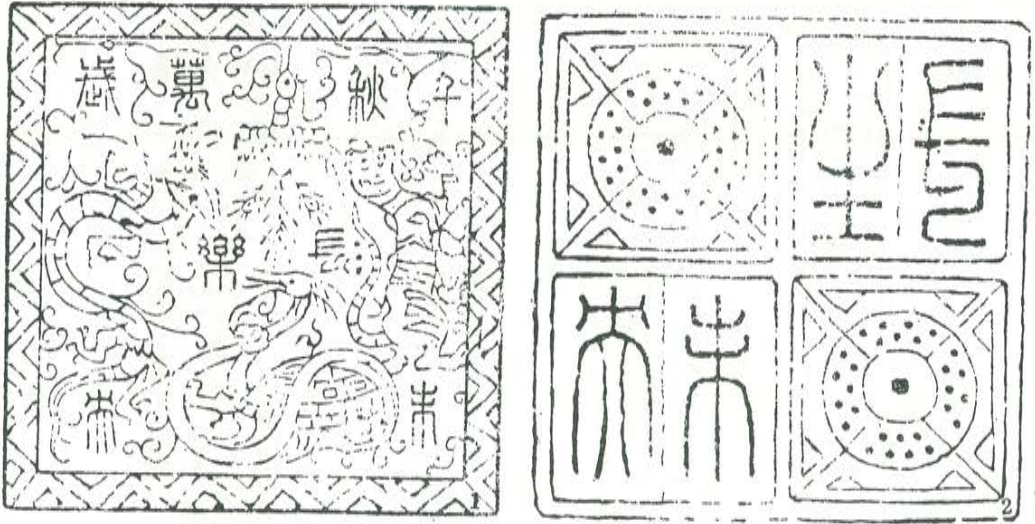
3. 甕 東漢時也有稱磚為甕的，甕的本義是指土坯。現已發現甕的遺物多數在四川，這甕或地方的磚名，如江東人稱磚為甕或壁。如插圖三十四A 所示：1. 一九四

(1) 曾凡，1959，p. 632.

(2) 馮雲鵬，1822，金石索石索六。

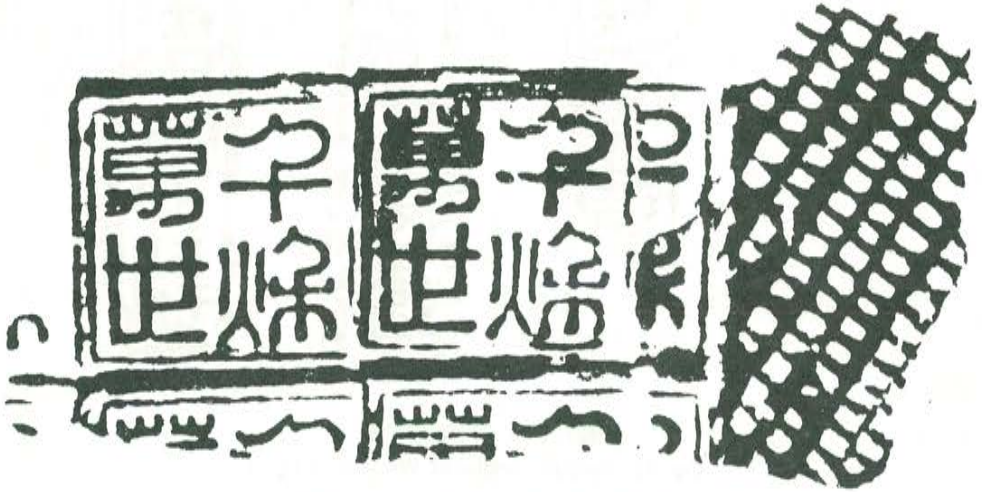
(3) 王獻堂，1931，V. 2.

(4) 關野貞，1929，pls. 168-172.



插圖三十二 漢代的方甃

Fig. 32 Square bricks impressed with inscriptions and designs of Han Dynasty.



插圖三十三 上陶室磚瓦集錄的方磚殘塊

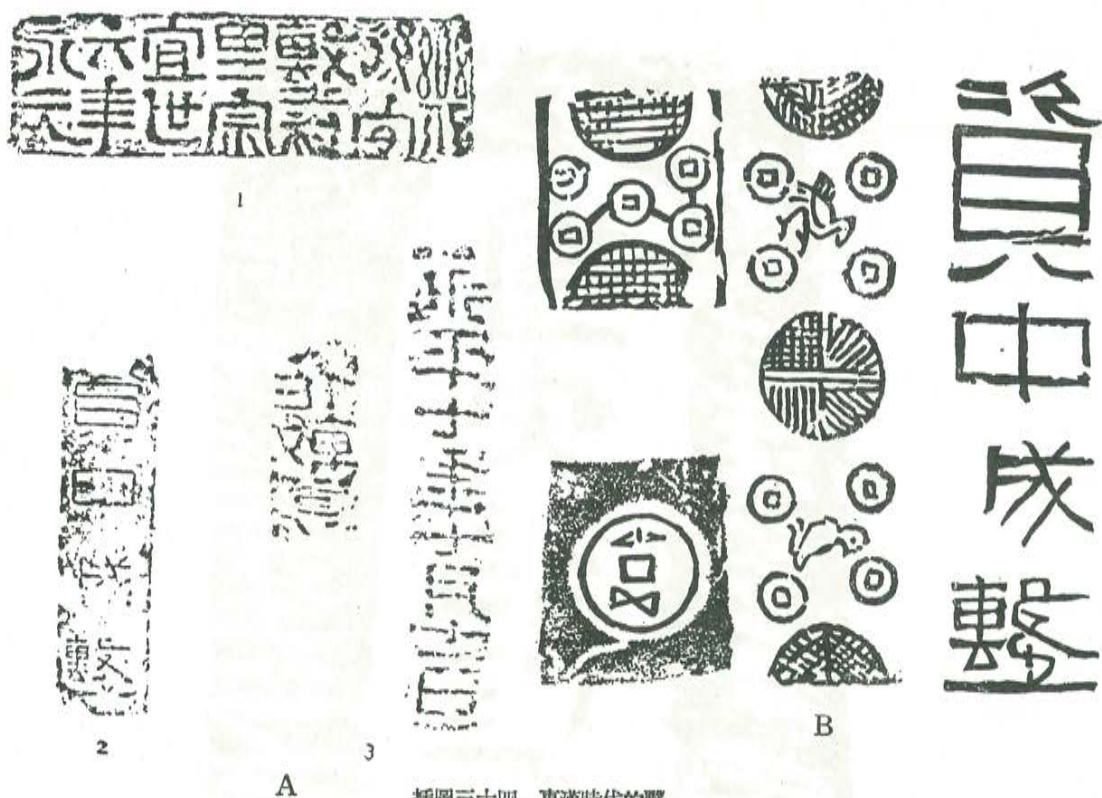
Fig. 33 Broken Square brick of Han Dynasty.

五年四川宜賓出土的墓磚上有：“永元六年（西元94年），宜世里宗壑，利後安樂；
 2. 萃珍閣蜀磚集收的一磚，文作“資中成壑”（插圖三十四B）⁽¹⁾；3. 王樹枬的漢魏六朝專文有一磚，文作“永平七年（西元66年）七月十一日作壑□”，字印作反文⁽²⁾。

4. 磚 壑字出現雖較晚，應劭風俗通：“甃，聚磚修井也”。蜀譙周古史考：“烏

(1) 勞 幹，1952，p. 154

(2) 曾 凡，1959，p. 632.



插圖三十四 東漢時代的壘
Fig. 34 Pottery bricks of Eastern Han.

曹氏作軀”。但磚早已存在，如插圖三十五所示：漢末央宮井磚，文曰“長安郭可”字作反體⁽¹⁾；又插圖三十六：1. 漢建元磚，文曰漢建元元年八月作，皆反文；2. 漢征和磚，文曰征和元年八月三日作；3. 晉太康磚，文曰：“太康六年八月陳郡殷氏”，陰文正書⁽²⁾。又圖版拾肆為四川發現之磚：1. 延光二年（西元123年），2. 建興四年（226年）五月六日造，3. 延年元年（106年）八月廿日造之”。4. 5. 永平三年（60年）三月一日，6. 建初元年（76年） $\text{日}\text{月}\text{年}$ ，7. 永建元年（126年）二月造。⁽³⁾

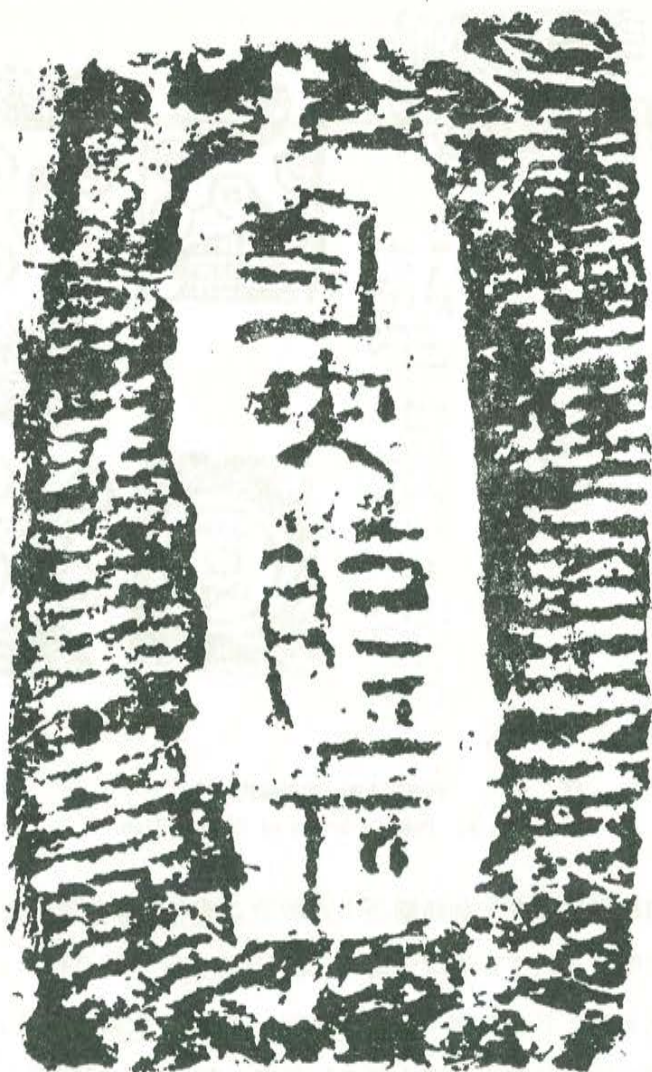
上錄為古代磚瓦的遺物，瓦之最早者有易州出土的燕瓦和奇字瓦及羽陽宮瓦，磚則有霸陵過氏甔，漢武以前，未有年號磚（插圖三十七）⁽⁴⁾。至於模印磚瓦上花紋與文字

(1) 吳大澂，1919, p. 10.

(2) 陸心源，1891, Vol. 1, p. 1; Vol. 5, p. 3.

(3) Chêng, 1957, p. 230.

(4) 吳大澂，1919, p. 18.

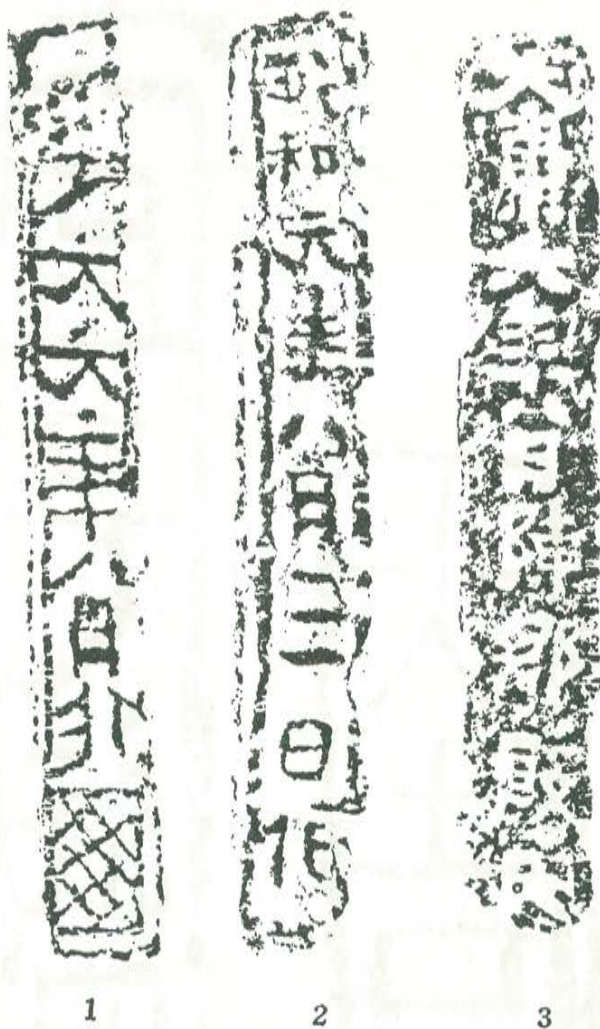


插圖三十五 漢未央宮井磚

Fig. 35 Well brick of Han Dynasty.

的技術，茲略述之。現先說瓦，宋應星天工開物陶埴第七有云：

凡民居瓦形皆四合分片，先以圓桶為模骨，外畫四條界，調踐熟泥，疊成高長方條，然後用鐵線弦弓線上空三分，以尺限定，向泥不平憂一片，似揭紙而起，周包圓桶之上，待其稍乾脫模而出，自然裂為四片(插圖三十八)。……若皇家宮殿所用大異于是。其制為玻璃瓦者，或為板片，或為宛筒，以圓竹與斲木為模，逐片成造。



插圖三十六 漢晉時代的磚

Fig. 36 Pottery bricks of Han and Chin.

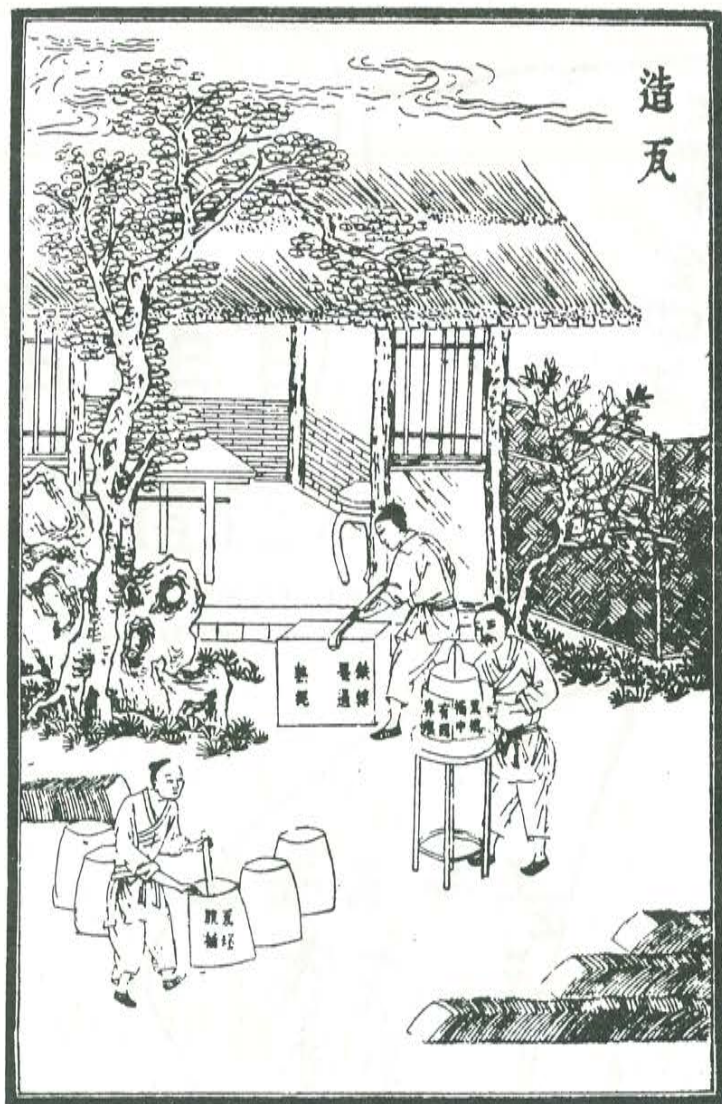
上錄僅描述模製瓦法，而不及模印，曾昭燁氏在點蒼山下所出古代有字殘瓦文中，推測模印瓦上文字甚詳，她說：

今大理所發現之有字瓦，其文字之模印，當在瓦面業已打磨光滑之後，而在中心一桶取去之前。瓦面既已光滑，文字印後，不須更加修磨。中心一桶未取出，則內有堅硬之襯物，模印時，瓦不易損壞也。刻字之模，當為一條形木，如今日所用木戳，其長度略與瓦相等，寬度則視字之大小而異，常比字略寬。模上之字，多陰文反刻，印之反面，遂成陽文正字（插圖三十九：1），但亦



插圖三十七 漢武以前未有年號之磚

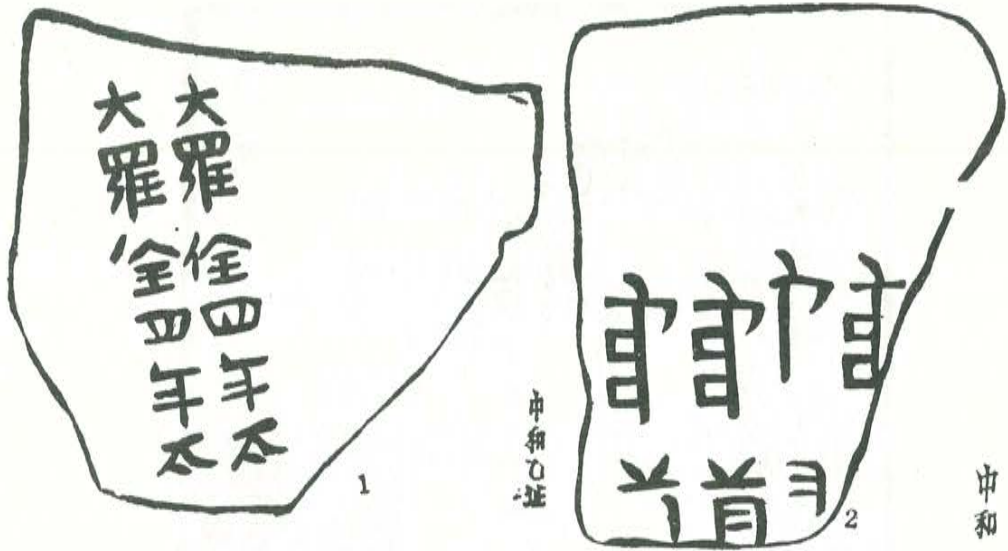
Fig. 37 Pottery brick prior to Emperor Wu of Han Dynasty.



插圖三十八 天工開物陶埴造瓦

Fig. 38 Tile making of Ming Dynasty.

有陰文正刻者，則瓦上印出之字，即為陽文反字。自王冢曾出一殘瓦，上有一‘官’字為正寫之陰文，故模上之字，當為陽文反刻(插圖三十九：2)。文字皆印於瓦之凸面，一瓦上常重複數次，有時相擠相疊，至不能辨認(插圖四十：1, 2)。因為一模所印，故重複之字，皆絕對相似。有時筆畫有完缺粗細之不同，甚至有缺字者，則因模上字為陰文，字畫凹下，印於濕泥上，甚易填塞，



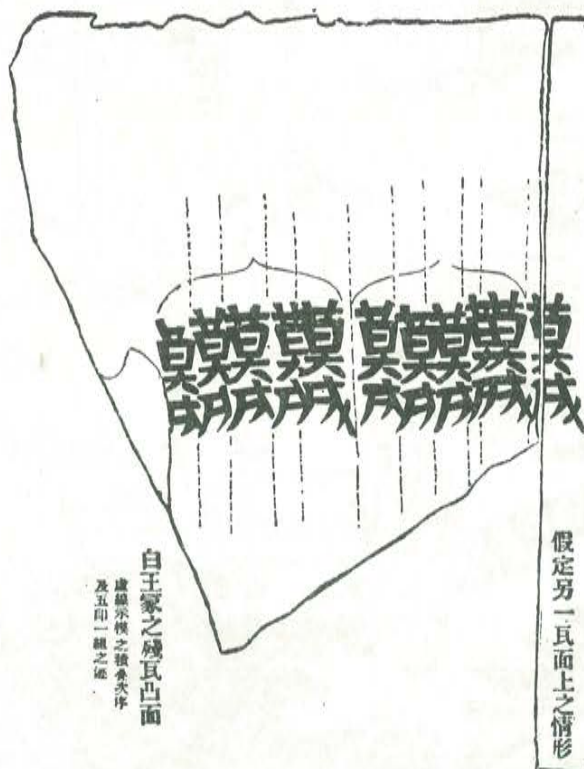
插圖三十九 點蒼山下所出古代有字殘瓦
 Fig. 39 Broken inscribed tiles found in Ta-li, Yunnan.



插圖四十 點蒼山下所出有字殘瓦
 Fig. 40 Broken inscribed tiles found in Ta-li, Yunnan.

填一畫則瓦上一畫缺，填一字則瓦上一字缺。

白王冢出一殘瓦，文曰莫成，似為一窯戶姓名。瓦上存字十一行，最右一行，僅存二字之小半，其大半當存於另一瓦面。蓋印文字時，四瓦猶是桶形之圈，印後方剖為四，故有文字中分之情形。茲將是瓦摹本附後(插圖四十一)，以示拍印之技術⁽¹⁾。



插圖四十一 白王冢之殘瓦凸面

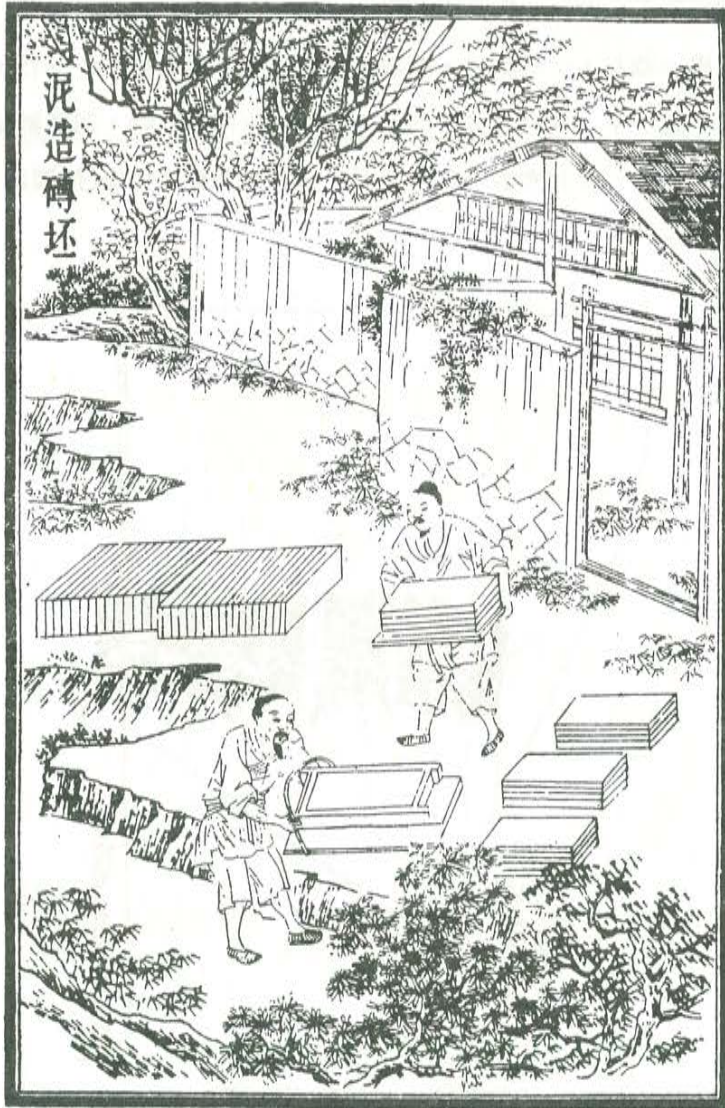
Fig. 41 Broken inscribed tile found at Tomb of Pei-wang, Tali, Yunnan.

曾氏作上面推測，曾與董作賓、石璋如兩先生討論過，並參酌他們的意見，所得結論相當正確，故不憚煩全錄之，可作為模印磚瓦上花紋與文字技術的參考。

至於造磚，天工開物卷中陶埏有云：

凡埏泥造磚，亦掘地驗辨土色，或藍或白或紅或黃，皆以黏而不散，粉而不沙者為上，汲水滋土，人逐數牛，錯趾踏成稠泥，然後填滿木匡之中，鐵線弓憂

(1) 曾昭燏，1942, p. 99.



插圖四十二 天工開物泥造磚坯插

Fig. 42 Brick making of Ming Dynasty.

平其面而成坯形(插圖四十二)。

磚上花紋與文字的模印法：磚有六面：左右側，上下端，正反面。側面或兩端的花紋文字或雕在木框的裏面，做坯時即已印成；正面的或以雕板或木戳俟坯半乾時印上，以木戳印花或字，故每有重複者(插圖三十三；圖版拾叁：E)。

由上研究磚瓦上花紋與文字的模印技術，證之以已發現的古代遺物，則可推知中

國早在戰國時代，已知雕刻木板用於印花紋或印文字矣。

本文以上研究的印紋陶，陶印版，璽印陶文，模印磚瓦，可見印文的發展，先印花紋進而再印文字。新石器時代的印文陶祇印花紋，至戰國已有陶印文字，秦漢時模印磚瓦文字盛行。故欲研究中國印刷術發明時期問題，在廣義方面，應溯源至新石器時代的樹皮布印花和印文陶印紋；至於狹義的印文字，則先秦時璽印陶文和磚瓦模印文字早開其端。今之史學家謂中國印刷的發明，應在西元八世紀上半期⁽¹⁾。這祇能說是印書於真紙的開始，不是印刷術發明的正確時期。

最後我們還要提及，Carter氏在所著中國印刷術的發明及其西傳書中的第二章：印的使用和第十章：印花布，曾經間接指出樹皮布印花和印紋陶花紋及文字與印刷術的淵源，Shafer⁽²⁾和Goodrich⁽³⁾兩氏都贊同其說。但Carter氏假設印花布起源於印度⁽⁴⁾，而著者在前文中發現中國早有斑紋布，即印花的樹皮布，所以印花布的源地似在中國而不在印度。至於印的使用，Carter氏祇提到璽印和印泥⁽⁵⁾，本文由印泥追溯到新石器時代的印紋陶文飾和周秦時的磚瓦模印花紋及文字，誠如Shafer氏所猜想的，用模印泥或早於璽印 seal impressions⁽⁶⁾。所以狹義的印刷，即印成書本，或開始於第八世紀初葉；廣義的印刷，正如Goodrich氏所說的印刷技術是經過長時期發展而來的⁽⁷⁾。

(1) 李書華，1957，p. 106；1958，p. 133.

(2) Shafer, 1960, p. 329.

(3) Goodrich, 1962, p. 556.

(4) Carter, 1955, p. 193.

(5) Carter, 1955, pp. 12-13.

(6) Shafer, 1960, p. 329.

(7) Goodrich, 1963, p. 36.

DESIGNS AND INSCRIPTIONS ON IMPRESSED POTTERY AND THE INVENTION OF PRINTING

(Abridgement)

The present article is a continuation of my discussion, entitled the "Decorative Prints on Bark Cloth and the Invention of Printing" previously published in No. 14 of this Bulletin. Originally, these two articles were written as one paper; however, it was later published under separate titles due to its length. Therefore, it is advisable for any reader who is interested in this subject to read these two articles at the same time; since they were initially written at one time, the arrangement of materials as well as the tones in which the writing was developed were both in orderly sequence and closely related. Now that they are published as two separate writings, lack of fluency and smoothness will inevitably be felt at certain places. For example, Section 3, "Wooden Seals—the Transition from Seals to True Block-Printing," and Section 4, "The Date and Area of the Invention of the Art of Printing," of the previous article were Sections 7 and 8 respectively in the original manuscript. Thus, by reading these two articles at the same time in the order of first perusing Section 1 and 2 of the previous article, then 4 sections of this article, and lastly, Section 3 and 4 of the previous article, you will notice that the whole work, in natural flow and systematic development, was originally accomplished at one breath.

Some scholars, both Chinese and foreign, in the study of the history of the invention of printing, have touched on problems pertaining to the impressed pottery in order to determine its relationship with the art of printing. For instance, Carter gave an account of the use of seals for making impressions on clay in one of his works published in 1925. Fujita, Toyohachi 藤田豊八 pointed out a record—"They make molds with clay and then in which they cast images with clay; or print (images) on silk or paper, and worship them with offerings wherever they go..."—contained in I Ching 義淨 (634-713) of Tang Dynasty's *Nan hai chi kuei nei fa chuan* 南海寄歸內法傳. If the use of seal for making impressions on clay and casting images in clay as mentioned above were accepted as the forerunners of printing, then we should more reasonably trace for such to the impressed pottery of the Neolithic Age. During the earliest stage of the culture of impressed pottery, decorative designs were struck on pottery with wooden tablets or bats with either fixed patterns formed by ropes, or with engraved designs, or impressed with earth-burned printers. Later, during the periods of the Spring and Autumn (722-481 B.C.) and the Warring States (482-221

B. C.), the use of seals had grown gradually. In addition to sealing clay, they were used to make marks on pottery ware. Down to the epochs of Chin and Han, they were further used in stamping designs and characters on clay bricks and tiles. In this light, we should first direct our attention to the co-existing cultures of decorated pottery and bark cloth, if we want to resolve the problem of the origin of the ancient Chinese art of printing. Because these two cultures were alike in their techniques, implements and the designs used, to a certain degree, therefore they may be called Sister Cultures—and both may be regarded as the forerunners of the later art of Printing.

I. IMPRESSED POTTERY IN CHINA AND SOUTHEAST ASIA

Even in the Neolithic Age, the impressed pottery was widely distributed in China. According to Shih, Chang-ju 石璋如 (1952: 65), its distribution in the central part of North China included the cultural feature of painted pottery, also known as the Yang-shao Culture, in the upper valley of the Yellow River, and the black pottery cultural feature, also called the Lung-shan Culture, of the lower valley of the Yellow River. In addition, there was a cultural trait of pottery with designs made by beating or patting, distributed between the above two areas. Fig. 1 shows the geographical distribution of the above three features of the pottery culture.

In discussing the impressed pottery of central China, let us first examine some of the pottery vessels unearthed from the three ruins of Hsiao T'un 小屯, Tsao Liyu Tai 造律台, and Hei Ku Tuei 黑孤堆. The decorated pottery articles from the Hsiao T'un Site consist of both patting-impressions and pressing-impressions. For example, Plate I:A and Plate II:C illustrate the patting-impression designs. Li Chi 李濟 (1956: 117) explained that such designs were made up chiefly of the marks left by beating or patting. Besides these designs, the decorated pottery from Hsiao T'un, in a few cases, contain press-printed patterns, which, based upon Li Chi (1956:118), were produced by use of certain kind of printers (Plate II:B). Plate I:B shows fragments of impressed pottery from the two sites at Tsao Liyu Tai and Hei Ku Tuei, Yung Cheng 永城 Hsien of Honan 河南 and Plate II:A displays a *li* 鬲 (an earthen pot) made of impressed pottery from Pu Tsao Tsai 不召寨.

Except its distribution in the foregoing areas, the impressed pottery was also widely diffused in central China and south China, and was spread southward to as far as Indo-China and the Indonesian Archipelago. In fact, the impressed pottery of the areas of central, south and southeast possessed particular characteristics. Figs. 2 and 3 show the printed designs of Neolithic soft pottery in the southeastern China and Fig. 4 exhibits printed designs on the hard pottery of the Han Dynasty in the same area.

The southeastern area, so called above, covers the present Anhwei 安徽, Kiangsu 江蘇, Chekian 浙江, Fukien 福建 and Kiangsi 江西 provinces and the eastern portion

of Kwangtung 廣東 province. The following inference was made by Yin Huan-chang 尹煥章 (1958:84) as to the dates of the impressed pottery items discovered within this area:

(1) The impressed pottery ware unearthed in the southeast area are all artifacts of the Neolithic Age. Their dates range from as early as the Shang time, Western Chou, and down to the Periods of the Spring and Autumn and the Warring States.

(2) The impressed hard pottery date from the periods of the Spring and Autumn and the Warring States to the Han Dynasty.

(3) The impressed pottery was used in Kiangsu and Chekiang at the same time with the iron and bronze implements, while the impressed pottery ware in Fukien still remained as Neolithic vessels.

Pei, Wen-chung 裴文中 (1954:57) ever stated in his work that the duration of the impressed pottery might have commenced from its inception in the Neolithic Age and continued until the Han Dynasty.

Taiwan may also be included in the southeast area. Kano, Tadao 鹿野忠雄 (1955:59) remarked: "There would be no great error, if we say that the impressed patterns predominated among all the ornamental designs on the prehistoric pottery of Taiwan." Although the amount of designs on the potteryware excavated in Taiwan is not small, yet they are, in most cases, outshined in quality by those on the pottery discovered in Canton and Hong Kong of South China. Plate IX:C & D contain designs observed on the pottery articles found from Canton, and among them the cross-hatching patterns are the most popular (Mai, Yin-hao 麥英豪, 1958:48). The decorated pottery antiques discovered at Hong Kong include more designs and patterns. Further, they consist of both soft pottery and hard pottery (Finn, 1958:99). Fig. 5 shows the designs on the soft pottery (Davis & Tregar, 1960:205) and Fig. 6 those on the hard pottery (Chen, Kung-chieh 陳公哲, 1957:10-11).

This impressed pottery culture, which began and flourished in southeast China, spread westward to Hupei 湖北, Hunan 湖南, Kwangsi 廣西 and Hainan Island 海南島; then, farther westward to Yunnan 雲南 and Vietnam; thence southward to the southern part of Indo-China, Malay Peninsula, Sumatra, Java and Borneo. The impressed pottery may be grouped into two types: The soft pottery and the hard pottery. The former had been in existence as early as in the Shang Dynasty and the latter was probably developed in the areas ruled by the States of Wu and Yueh along the Yangtze River during the period of the Spring and Autumn and begun moving southward in the Han Dynasty (Ichikawa, Kenjiro 市川健二郎, 1961:1-3).

There were two ways of producing designs on the pottery, the pat-impressing and press-impressing. The former, with an earlier origin, was in wide use, and the latter, being invented later, was comparatively less popular. In accordance with Shih, Chang-ju (1952:68) and Li Chi's inference derived from the traces of printing

on the decorated pottery, the designs of corded-pattern were produced with corded bats and the checkered patterns with printers engraved with cross-hatching designs. Their judgement appears to be correct based upon ethnological data. At present, the Wa Tribe (Plate III, Li, Yang-sung 李仰松, 1958:33-37) and the Tai Tribe (Plate IV, Chang, Chi 張季, 1955:488-489) in the southwestern part of Yunnan province can still make impressed potteryware. It is, therefore, obvious that the Neolithic skill for making impressed pottery is still preserved today among the less civilized tribes in the border areas of China

The primitive pottery-printing method is also preserved today in Indo-China. Fig. 7 (Colani, 1934:449-451) and Plate V (Colani, 1933:352, Plate 8) display some of the Laotian printers and tools for producing decorated potteryware. Plate VI exhibits the procedures followed by the Nagas in Assam in making potteryware and one thing worth special attention is the corded bats (Hutton, 1921:53-55) they are using.

Based upon the foregoing brief discussion, we may now conclude that, in space, the distribution of the impressed pottery culture of East Asia started from North China, spreading southward to central China and south China and then reached Indonesia by way of Indo-China; and, in time, it began in the Neolithic Age and has continued to be a living culture until the present time, as the primitive type of wooden printer with corded designs is still being used by the Sema Nagas. This culture and the bark cloth culture may be called the Sister Cultures because they are closely alike in their manufacturing tools, in their distribution, and in the length of their history (Mary Ling, 凌曼立 1960:331-338). Moreover, both of them had great bearing afterward on the invention of printing.

II. USE OF THE POTTERY PRINTERS

In the recent several decades, many pottery implements, with names and usage unknown, have been found on the Chinese mainland at the ruins and tombs dating from between the Neolithic Age and the Han Time. Most of them contain an uneven working surface formed by incising, cutting and impressing. They were referred to in the discoverers' reports as printers or pottery pounders used in the pottery handicraft. However, An Chih-ming 安志敏 (1957:69-76) supposed that such pottery items were probably tools used by ancient tanners for scraping dirt off, and smoothing the surface of the hides as well as for some other purposes. An's supposition seems to be open to question, for quite a number of pottery articles of this type have also been found in Indo-China and the Malay Peninsula. Beyer (1948:60) believed that these stone printers (Fig. 8) and pottery printers might have been tools for producing designs on bark cloth.

Fig. 9 shows the pottery printers discovered on the Malay Peninsula and are called bark-cloth stamps by Evans (1928:128). Fig. 10 and Fig. 11 manifest the pottery

tablets excavated in Cambodia of Indo-China which are regarded by Levy (1943:42-43) also as bark-cloth printers. Fig. 12 illustrates the pottery printers Colani (1933:352-355) found in Laos.

Findings in China: Described below are merely a few examples of the discoveries made in China:

South China—Plate VII:A furnishes a sample of the 18 pottery tablets unearthed from the Neolithic remains at Ch'ang-t'ing 長汀 of Fukien province (Lin, Hwei-hsiang 林惠祥, 1957:40). Fig. 13 illustrates the pottery pounders discovered in the northern suburb of Fu-chow 福州 (Hu, Yueh-ch'ien 胡悅謙, 1957:27).

Central China (Yangtze Valley)—Fig. 14 displays the Neolithic pottery tablets found in Fei-tung 肥東 of Anhwei province in this area (An, Chih-ming 1957:70) and Fig. 15 the pottery printers found at So-chin 鎖金 village near Nanking (Yin, Huan-chang 尹煥章, 1957:24).

North China (the two valleys of the Yellow and Huai Rivers)—Fig. 16 shows some of the Neolithic pottery printers from Huai-an 淮安 of Kiangsu (Tsao, Ch'ing-fan 趙青芳, 1955:17); Fig. 17 shows the pottery printer, a remnant of the Lung Shan Culture, found at Tsao Liyu Tai 遼律台 of Yung-cheng 永城, Honan (Li, Chin-tan 李景勳, 1947:104). More pottery printers, similar to the above in shape and style, have been unearthed at the site at Kao Huang Miao 高皇廟 of Hsuehchow 徐州, one specimen of which is exhibited in Plate VII:B (Hsieh, Ts'ung-tsu 謝春祝, 1958:12). Fig. 18 shows two of the pottery printers unearthed at the ruins of the Warring States at Shih Chia Chuang 石家莊, Hopei province (Sun, Teh-hai 孫德海, 1957:90). In addition, some of the pottery tablets discovered at the ruins of Shang Dynasty at Chengchow 鄭州 are shown by Plate VII:C and D (Tsao, Chuanku 趙壘古, 1957:57).

The functions of the above described pottery printers of China and Southeast Asia may be determined as follows:

(1) Those are tablets or printers for decorating potteryware, if their designs and designs of the potteryware unearthed at the same time are identical. For instance, the pottery jar and pottery tablet unearthed at Lao Ho Shan 老和山 of Hangchow 杭州 (Chiang, Tsan-ch'u 蔣鐵初, 1958:13-14) as shown in Plate VIII.

(2) Those containing designs which are different from those on the impressed pottery unearthed at the same are bark cloth printers, as the impressed pottery and the bark cloth cultures have existed together all the time in any area of Southeast Asia.

III. SEAL PRINTING OF CLOTH, WOOD, POTTERY AND CLAY

In 1925, Carter published his famous work, entitled "The Invention of Printing in China and Its Spread Westward," in the second chapter of which, he gave a tho-

rough discussion of seals of the old times and expressed that they brought about the art of printing originally. Again, he expounded the origin of the Chinese art of printing by pointing out that in the Chinese language the the word *yin* 印 (print) in the terms of *yin chang* 印章 (seal) and *yin shu* 印書 (book printing) is the same character. Further, he suspected that the use of seals in ancient China resulted from the Greek influence as the power of Alexander the Great had extended to Central Asia and India 100 years before Chin Shih Huang 秦始皇 achieved the unification of China (Carter 1955:11-12). Carter's belief that the seal was the harbinger of printing is certainly accurate; however, Li, Shu-hua 李書華 (1958:11) refused to accept the use of seals in ancient China was caused by Greek influence. Li's refutation regarding this point is quoted as follows: "According to our knowledge today, we can say for certain that this supposition is not correct. The seal was a Chinese invention without any doubt. About 1,000 years before Chin Shih Huang, seals had already existed in China, and were in common use in the Chou Dynasty. Therefore, there was not any influence from abroad on the use of seals in China." Besides, he made reference to the three bronze seals of Shang Dynasty as recorded in Yu Sheng-wu's 于省吾 *Suang chien chih ku ch'i wu tu lu* 雙劍謬古器物圖錄 (An Illustrated Book on Ancient Implements), two of which contain characters in relief (Fig. 19:a & b) and the third was engraved with characters in *Intaglio* (Fig. 19:c). Unfortunately, the characters on the first and the third seals have become illegible, but it appears that the second one might have been the seal of a certain famous general of the period of Wu-ting 武丁 (Li, Shu-hua, 1958:62).

Down to the period of Chou, the use of seals had become quite popular. Many records of seals are contained in *Tso-chuan* 左傳, *Chou-li* 周禮, *Chuang-tze* 莊子, *Lu shih ts'ung chiu* 呂氏春秋 and other historical and literary works. Based upon Lo, Tseng-yu 羅振玉 (1915:1-2), the seals of Chou time were primarily made with bronze, next with rhinoceros' horn, ivory, stone and pottery, and, sometimes, jade or iron was also used. Amid the records regarding seals contained in ancient documents, little can be found as to how they were used. In the old times seals were usually used to stamp silk and cloth, or make brands on bamboo or wood, but such ancient cloth, silk, bamboo and wood have scarcely been found as of this date. As revealed by the documentary data and relics available today, seals of the ancient times were also employed to print pottery as well as clay in addition to stamping cloth and wood.

STAMPED CLOTH: A record of cloth-stamping is found in the chapter of *Tsai shih* 載師 of *Chou-li*: "In the district without any growth of mulberry tree and hemp, *li-pu* 里布 was used." Cheng, Ssu-nung 鄭司農 annotated that *li-pu* was a piece of cloth, two inches wide and two feet long, printed with characters and stamped with a seal, and used as a medium of exchange.

With respect to *li-pu*, Sun I-jiang 孫貽讓 explained: "*Li-pu* was, in fact, made with a certain type of cloth, with characters written thereon and affixed with a seal, which become a pattern for the *chu-pu* 楮布 of later years."

I imagine the above passage means that the district without any growth of cereals, the *ku* 穀 or *chu* 楮 tree was grown and *li-pu* was made. Therefore, it seems to me that *li-pu* was nothing but *ku-pu* 穀布 or *ku-pu* paper.

SEALED WOOD: Among the sealed wooden articles of olden times which have been discovered to this date, there are 24 lacquered goblets with animal figures (Plate IX:A) originally found at Chang-sha 長沙 at some tomb sites of the time of the Warring States. A seal is affixed at the center of the bottom of each of these goblets (Plate IX:B). In most cases, the seal bears the name of the artisan. A statement to the same effect is found in Vol. 10 of *Lu shih ts'ung chiu*—"The handiwork of each craftman is inscribed with his name as an authenticating mark."

SEALED POTTERY: Generally speaking, the impressed pottery of the period of the Warring States was also inscribed with the potters' name, address and other pertinent information. The inscriptions of the pottery of the Shang Dynasty were engraved or incised on (Li Chi 李濟, 1956: Plate 61-63). Later in the epoch of the Warring States, the inscriptions on the majority of pottery works were pressprinted. Li, Hsueh-ch'ing 李學勤 (1959:52) stated: "Most of the pottery articles of the Ch'i 齊 State contained sealed inscriptions as well as colophons." and sample of which are shown in Fig. 20. Fig. 20:A exhibits a pottery seal (Chou, Ching 周進, 1943:111) and B and C show the inscriptions on the pottery (Chou, Ching 1943:80 and Liu, Tieh-yun 劉鐵雲 1904:69). Fig. 21 furnishes examples of potteryware which usually contained the potter's name and native place in addition to other designs (Chou, Ching 1943:60, 80 & Liu, Tieh-yun 1904:1), while Fig. 22 illustrates samples of pottery works which contained both the potter and the official in charge's name seals (Liu, Tieh-yun 1904:4,25; Chou, Ching 1943:57; Li, Hsueh-ch'ing 1959:52).

The inscriptions on all the pottery articles which have been discovered as of this date contain mostly the languages of the Seven States, of which the undecipherable is a little more than those which are decipherable. In some cases, the pottery articles bear almost only figures and signs, as shown in Fig. 23 (Ku, Yen-long 顧延龍 1936 Annex: 1-3). Further, in making impressed pottery, in addition to the designs patted or pounded on the unkilned forms of plastic clay with engraved pottery tablets, various tiny geometric figures were also impressed on them with small seals. Shown in Plate IX:C & D as examples are fragments of this type of pottery made in the time of Western Han (Mai, Yin-hao 麥英豪 1958:47). Besides the sealed figures and designs, sometimes, characters were also stamped on the potteryware, as exemplified by the antiquated objects of the Western Han Dynasty in Plate X:A (Mai-Yin-hao 1958:51).

As early as in the period of the Warring States, inscribing pottery products with seals had already been a prevalent practice in central China. This may be evidenced by Plate X:B (T'ang, Ch'ing-ming 唐青明 1958:45) and Plate X:C (Meng, Hao 孟浩 1959:340). Later in the beginning year of the Western Han Dynasty, this cultural trait had spread to Canton in the south and Liaoyang in the northeast; shown in Plate X:D is a sample of the inscriptions of the earthenware excavated from Liaoyang (Li, Wen-Hsing 李文信 1957:119). We may now assume that this culture of making inscriptions with seals had, in a great likelihood, resulted from the skill of sealing designs on decorated pottery. Such sealed inscriptions, in addition to serving as written marks, were decorative designs at the same time. For example, Plate X:A, B, exhibits two pottery jars with the two characters *ping ch'ang* 平倉 sealed all over them; Plate X:D shows a seal with the word 珣 and one object containing five impression of a same seale on its bottom. Among the discovered fragments of ancient inscribed pottery articles, quite a few are found with such repeated impressions by one seal, as shown in Fig. 24 (Chou, Ching, 1943:2, 23, 79).

STAMPING OF CLAY: 'Clay-stamping' as we call it today is nothing but the ancient skill of 'sealing clay.' Many scholars of today, Chinese and Western, such as Wang, Kuo-wei 王國維, Wang, Hsien-t'ang 王獻唐 (1936:76), and Carter (1952:11) believe that the seals of old times were used solely for sealing clay. However, this belief leaves room for doubt, in view of the foregoing discussion of the use of ancient seals in printing cloth, wood and pottery.

Of all the remnants of antiquated sealed clay which have been found as of today, there are by far more pieces made in the Han time than those dating from the Chou and Chin Dynasties. For example, Fig. 25 illustrates the sealed clay of Chou time (Wang, Hsien-t'ang 1936:1-3), Fig. 26, the officilly sealed clay of Chin Dynasty (Wang, Hsien-t'ang 1936:1-3), and Fig. 27, items of sealed clay of the Han Age (Wu & Chen 1904:3-5).

Except the above described purposes, the seals of old times were also employed in stamping silk, as evidenced by the sentence "the officers assigned to positions at the passes were provided the military *hsu* 繻" (a piece of silk torn two pieces, one of which was given as a credential and the other retained.) which Wang, Kuo-wei quotes in his *Chien tu chien shu kao* 簡牘檢署考 from the Biography of Chung Chun 終軍 in *Han shu* 漢書. The *hsu* was, in fact, a piece of silk stamped with a seal and used as a type of credential.

We may now conclude, from the preceding study, that seals were used for stamping cloth, wood, pottery, clay and silk in ancient times, instead of stamping clay alone as maintained by many previous scholars.

IV. IMPRESSED DESIGNS AND INSCRIPTIONS ON ANCIENT BRICKS AND TILES

We have made a thorough discussion in the previous sections of the uses of

ancient seals in stamping cloth, silk, wood, pottery and clay. All of which may be regarded as the forerunners of the art of printing, since stamping with seals and printing books with engraved blocks differed only slightly in their techniques. As a matter of fact, impressing designs and characters on tiles and bricks with molds, being no other than sealing clay with carved wooden boards, is same in technique as printing books with engraved wooden blocks. The distinct difference between them lies in the objects on which printing is made, one on clay and the other on paper.

Based upon the information gained from archaeological excavations, it may be determined that use of tiles for the purpose of building in ancient China began a little earlier than the bricks (Tseng, Yung 會庸 1959a:629).

Wa tang 瓦當 (eaves-tiles)—Lo, Tseng-yu (1914:1) gave the following succinct description of *wa tang* in the preface to his book, entitled "The *wa tang* Inscriptions of Chin and Han dynasties": "*Wa tang* was used to ornament the eaves edges—the end of which was inscribed with the name of the concerned palace, monastery, hall, gate, tomb, stable, pass or granary. In many cases, it contained some auspicious words or figures. These tiles were used for both official building and private construction by people from all walks of life. The use of *wa tang* began in the Chou and Chin Dynasties and terminated in the period of the Six Dynasties."

At first, designs were molded on the ends of *wa tang*; later, characters or inscriptions were produced on them. Tseng, Yung (1959b:676) remarked: "During the period of the Warring States, the prevailing decorative designs on the half-*wa tang* (semi-circular eaves-tiles) included the *tao tieh* 饕餮 figure (a fierce animal having a head but no body), human figures, and various bird as well as animal figures. With the arrival of the Western Han Dynasty, inscriptions or characters began to replace these figures gradually."

There is a little doubt about the accuracy of the above statement made by Tseng, because although some of the half-*wa tang* of the period of the Warring States were impressed with the *tao tieh* figures, as exemplified by the tiles of Yen 燕 State found at I-chow 易州 shown in Plate XIII:A & B (Sekino 關野 1952: Pls: 1,4). As for the dating of the human, bird and animal figures on the half-*wa tang* and whole-*wa tang*, some of them range from the Chin and Han Dynasties to the Wei 魏 and Tsing 晉 Periods, as shown in Plate XI (Lo, Tseng-yu 1914: vol. 4:2-16). In actuality, the replacement of the pictorial designs on the *wa tang* by characters or inscriptions did not start from the Western Han either, as evidenced by Plate XII. Takeshi Sekino (1956:514) found a half *wa tang* at Chi-cheng 齊城 with two characters 大寶 on it. For further proof, the following statement by Lo, Tseng-yu (1914:4) is cited:

The Yuyang 羽陽 Palace (Plate XII:C & D) was built under the rule of Duke Hsiao 孝 of Chin. Hence, all the *wa tang* used must have been made during the late Chou. In addition, it is evident that those tiles inscribed with ancient odd

words could not have been products of later than the Chin and Han periods.

Fig. 28 displays the four *wa tang* of the Chin Dynasty as contained in the *Chin shih so* 金石索 and Fig. 29 provides samples of the *wa tang* of the Western Han Dynasty (Tseng, Yung 1959:678).

Bricks—Based upon the report of the recent archaeological excavations, it is believed that the hollow bricks and big bricks unearthed at the ruins of the Warring States were, in all probability, the earliest two types of bricks that had ever been made. Later, in the Han Dynasty, the use of bricks had become quite popular. In his work on the "Tiles and Bricks of the Chin and Han Periods," Sekino (關野貞), a Japanese scholar, divided the ancient bricks of China into three groups; the common bricks, big bricks and hollow bricks. During the period from the Han Dynasty to the Six Dynasties, *ling pi* 瓴甃, *fan ku* 甗甗, *chi* 墼 and *chuan* 埵 had been the common terms by which the ancient bricks were known.

(1) *Ling pi* 瓴甃—Bricks were called *ling pi* in the Western Han Dynasty. Fig. 30 shows a piece of the pottery brick of the Han time inscribed with the "Kuo's *ling* of Pa-ling" 霸陵過氏瓴 (Wu, Ta-cheng 吳大澂); Fig. 31: 1. is a pottery brick of the Wu 吳 State inscribed with "Sze 施 made *pi* in the third year of Feng Huang 鳳凰" (Lu, Sin-yuen 陸心源 1891: vol. 3:13a) and 2. a wall brick of the Tsin period inscribed with "wall brick made in July of the third year (281 A. D) of Tai Kang 太康" (Lu, Sin-yuen 1891 vol. 4:11a).

(2) *Fan ku* 甗甃 (big brick)—*Pi chang* 埤蒼: "*Fan ku*, big brick." *Tung shu wen* 通俗文: "The big and square brick is called *fan ku*." The square bricks appeared relatively earlier than the other types. Some relics of which have been found at the ruins of Yen Hsia Tu 燕下都 of Chou time at I-hsien 易縣 Hopei province. During the time of the Western Han, the square bricks were used as materials for pavement or for flooring of tombs (Tseng, Fan 會凡 1959:630). Amid the square bricks of the Western Han, some had a flat surface; some had a granular surface, specially used for paving roads; and some others with geometric patterns or inscriptions (Tseng, Fan 1959:632). Shown in Fig. 32 are some examples of the Western Han square bricks. Illustrated in Fig. 33 (Wang, Hsien-t'ang 1931 V. 2) and Plate XIII:D & E (Sekino 1929: Plate: 168-172) are the square hollow bricks of the Western Han which were generally used for flooring the tombs.

(3) *Chi* 墼 (Unburnt brick)—Bricks was also named *chi* in the period of the Eastern Han. The word *chi* means unburnt brick. Most of the ancient *chi* which have been found to this date were originally from places in Szechuan 四川 province; the asmples shown by Fig. 34:2 was originally a *chi* of the city wall of Tzu-chung 資中 (Lao, Kan 勞幹 1952:16). *Chi* might have been a local name for brick, as brick was called *pi* by the people of Chiang Nan 江南 (south of the Yangtze River) as displayed in Fig. 34 (Tseng, Fan 1959:632).

(4) *Chuan* 埵 (brick)—The word *chuan* came into being long after the appearance

of the substance it represented, namely, brick. Fig. 35 shows a well brick of the Han Dynasty (Wu, Ta-cheng 1919:11), Fig. 36 shows samples of the Pottery bricks of Han and Tsin Dynasties (Lu, Hsin-yuen 1891: Vol. 1, p. 1; Vol. 5, p. 3), and Plate XIV, the brick of the Eastern Han unearthed in Szechuan (Cheng, Teh-k'un 1957:230).

Among the ancient bricks and tiles described above, the earliest tiles include the tiles of the Yen State unearthed at I-chow, the tiles inscribed with odd characters and the tiles from Yu-Yang Palace; the earliest bricks are the Kuo's *Ling* of early Han Dynasty and the undated bricks made prior to the reign of Emperor Wu 武 of Han Dynasty as illustrated in Fig. 37 (Wu, Ta-cheng 1919:18). As to the ancient skills of molding designs as well as inscriptions and tiles, a brief discussion is made in the following:

Tile-making skill of ancient China—A record of the ancient tile-making method is contained in Vol. 7 of *Tien kung kai wu* 天工開物 (Creation by Heaven's work), written by Sung, Ying-hsing 宋應星 of Ming Dynasty, but which describes only about the processes of making tiles by means of molds, as illustrated by Fig. 38, and does not furnish any information in connection with mold-printing of Tiles. In her paper titled "The Broken Inscribed Tiles Unearthed at the Foot of Tien Chiang 點蒼 Mountain," Tseng, Tsau-yuh 曾昭燾 gives a detailed conjectural statement relative to the molded inscriptions on the broken tiles of Tang Dynasty found at Ta-li 大理, Yunnan province as follows:

Apparently, the inscriptions found on the Ta-li tiles were mold printed on their surfaces after they have been patted and rubbed smooth... The characterized mold must have been made of a strip of wood in the shape of today's wooden stamp. Its length should match that of the tile to a certain degree and its width varied with the size of the characters, usually a little wider. The characters on the mold were, in most cases, engraved in reverse in intaglio, and their impressions on the tile would then be characters in relief in regular form (Fig. 39:1). Sometimes, a mold was also engraved with characters in intaglio in regular form, thus, when printed on the tile, they would become characters in reverse in cameo (Fig. 39:2). As a rule, all characters were printed on the convex surface of the tile. In quite a few cases, identical characters were printed so crowdedly and with many over prints that they become even undistinguishable (Fig. 40:1, 2). Because the characters were incised in the molds intaglio, therefore, the depressed stroke were easily filled up when making impressions on the wet clay. As a result, a number of the inscribed tiles often had characters with heavy, slender as well as incomplets strokes, and sometimes, certain characters did not show at all... A broken tile discovered at the Tomb of Pai Wang 白王 (Fig. 41) is inscribed with two characters, i. e. Mo Cheng 莫成, which seem to be the name of a kiln. Altogether, there are eleven columns of these two

characters seen on this broken tile; however, only a small portion of the extreme right column is preserved, and the greater portion of which must be on the missing part of the tile (Tseng, Tsau-yuh 1942:99).

Tseng's inference, as extracted above, based upon the remnants of Tang Time, is considered to be quite accurate and of great help in our study of the ancient mold-printing of designs and inscriptions on bricks and tiles.

Method of Brick-Making—The picture in Fig. 42 reveals to us the general processes of the traditional Chinese brick-making method. Each brick has six surfaces, namely, the left and right sides, the upper and lower ends, and the obverse and reverse surfaces. In making decorated and inscribed bricks, engraved molds were impressed on the sides and ends of the bricks at the same time when they were shaped up in clay in the molds, while those on the obverse surface were probably printed with engraved boards or wooden stamps when the clay was still plastic. Repeated prints or over prints sometimes occurred as a result of swift stamping (Fig. 33; Plate XIV:E).

From the foregoing study of the mold-printing techniques of bricks and tiles, with corroboration by the ancient articles which have been discovered today, we may conclude that as early as in the period of the Warring States, the skill of printing designs and characters by means of carved wooden boards had already been in existence.

We may now also ascertain, based on the preceding discussions on the impressed pottery, pottery tablets, seal-stamped inscriptions on pottery as well as clay; and the mold-printing of bricks and tiles, that in the ancient development of the printing skill, designs or figures came before inscriptions or words. The impressed pottery of the Neolithic Age contained only designs, and inscriptions or characters had not been printed on potteryware until the period of the Warring States. However, the practice of mold-printing of characters or inscriptions on bricks and tiles was quite prevalent during the Chin and Han Dynasties. Therefore, in determining the time of the invention of the Chinese art of printing, in its broad sense, we should trace back to the printing of designs and figures on the bark cloth and pottery during the Neolithic Period; while, in its specific sense, namely, the printing of words, it began to take shape when seals were first used for producing inscriptions or characters on the pottery, bricks and tiles during the Pre-Chin period.

Many historians of our time believe that the Chinese art of printing was invented during the first part of the 8th century (Li, Shu-hua 1957:106; 1958:133); but in view of the above facts, we may say that only printing on 'true paper' was begun during this period of time, while the printing skill itself had been originated at a much earlier date.

Furthermore, in the second chapter, "The Use of Seals", and in the twentieth, "The Printing of Textiles", of his book entitled "The Invention of Printing in China

and its Spread Westward", Carter indirectly pointed out that the decorative prints on bark cloth and designs on impressed pottery were closely related with the printing art. Shafer (1960:329) and Goodrich (1962:556) also shared his view. Carter (1955:193) assumed "It seems reasonable to suppose that India, the home of cotton, was also the first country where many of those processes were born that led the way to textile printing". But as shown in my previous article "Decorative Prints on Bark Cloth", I discovered the *pan wen pu* (cloth with mottled or streaked markings), namely the decorative prints of bark cloth, has existed in China in the remotest times, therefore, I supposed that the printed cloth seemed to have come into birth originally in China and not in India.

As for the use of seals, Carter (1955:11-18) only mentioned the seal impression and sealing clay. But this paper presents my investigation starting from the sealing clay, of the origin of the designs and inscriptions on the Neolithic impressed pottery as well as those on the tiles and bricks of Chou and Han Dynasties, which closely agrees with Shafer's (1960:329) statement: "One may guess that moulds for soft material such as dough or clay would be the first types used, perhaps even earlier than seal impression." Therefore, printing, in its restricted sense, namely the printing of books, may have begun from the early part of the 8th century, and Goodrich's (1963:36) statement that the art of printing took a long time to develop explains it to the better in its broad sense.

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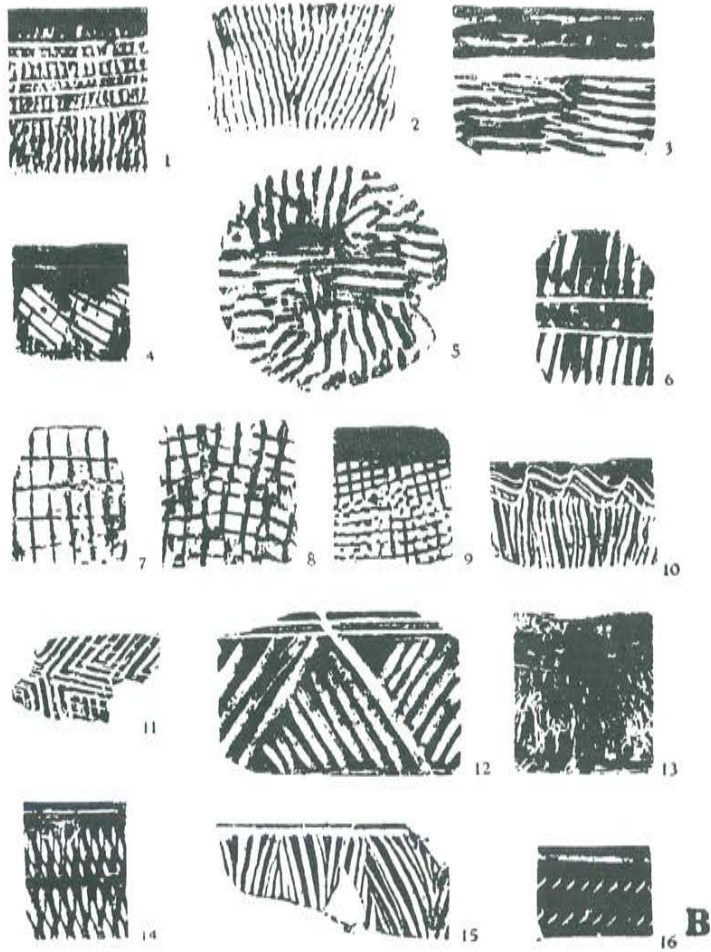
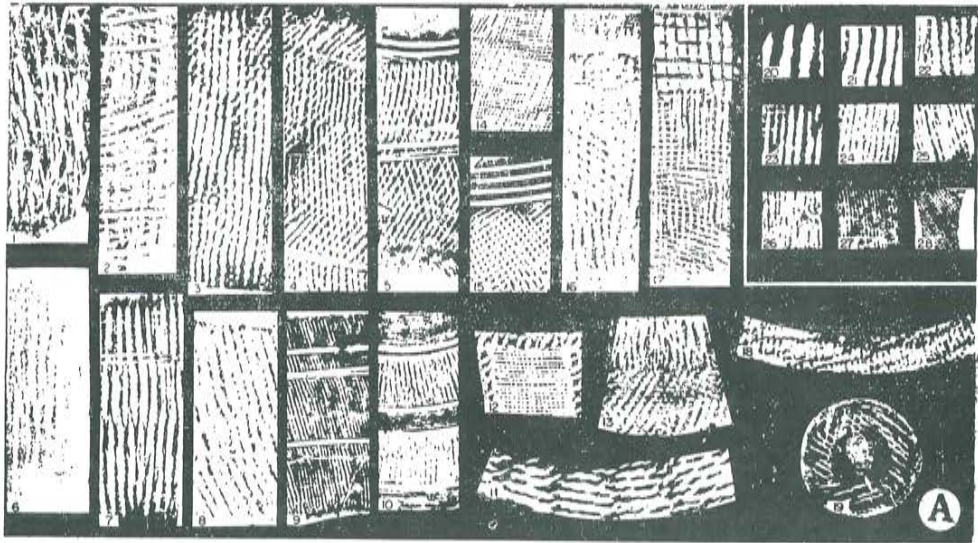
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Designs and Inscriptions on Impressed Pottery and the Invention of Printing

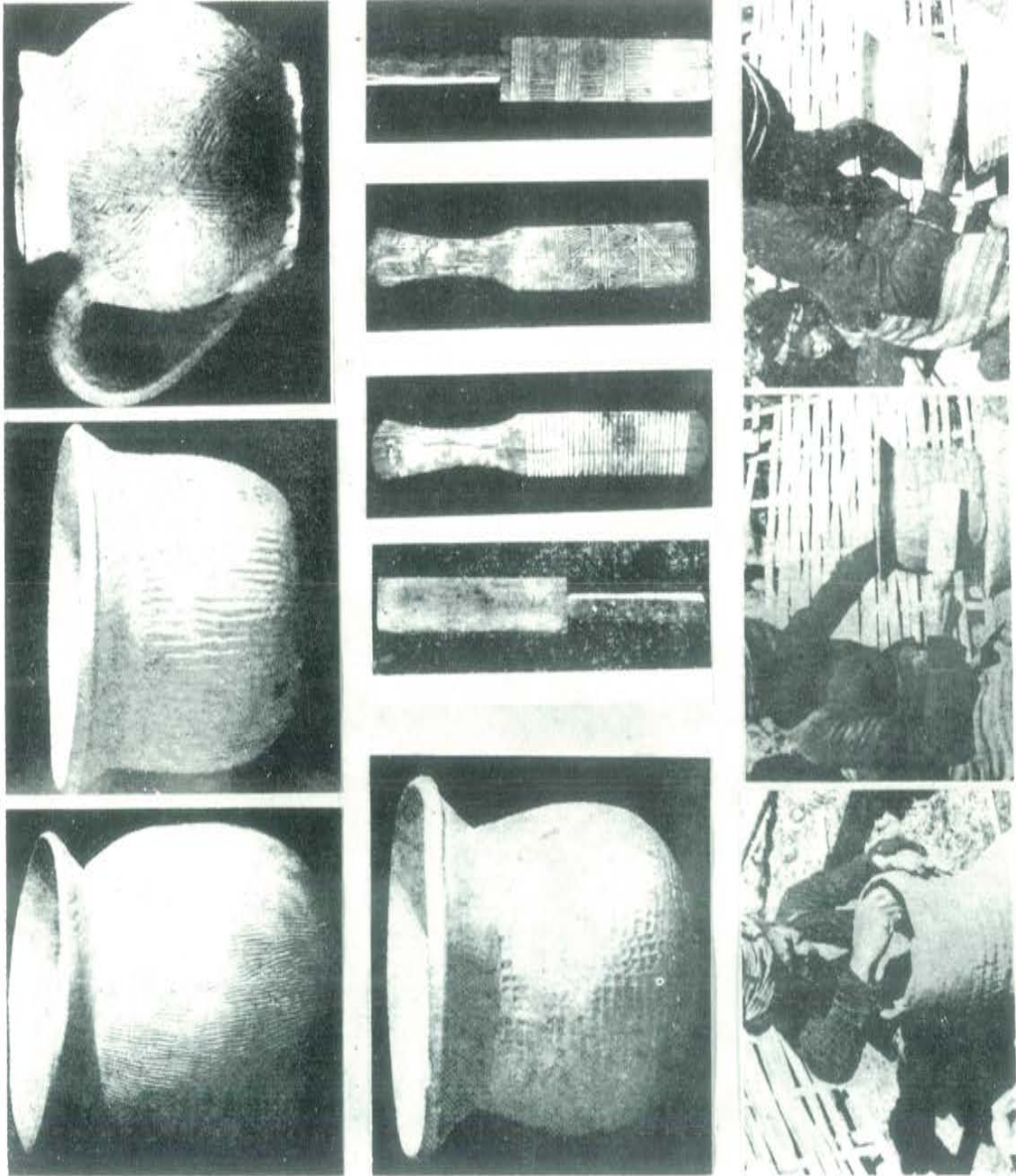
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(附註：本頁漏印，續前增補。)



A. 小屯的印紋陶
Pottery with beatep's mark from Hsiao-t'un.

B. 濠律臺和黑孤堆的陶器紋飾
Pottry designs from Tsau-riyu-tai and Hei-ku-tuei.



雲南泰族婦女製造陶器

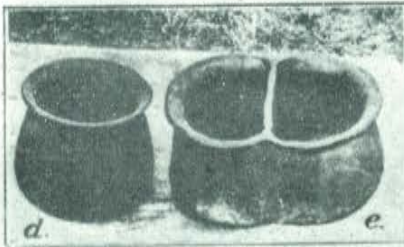
Pot-making of Thai women, Southern Yunnan.



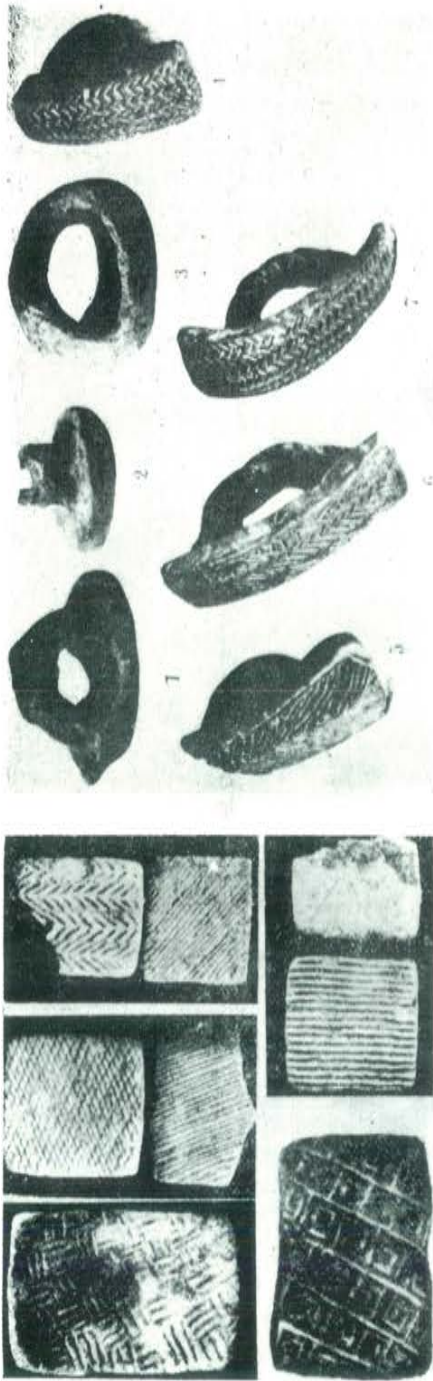
A. 老撾的陶車陶拍及陶罐
Pottery wheel, beater and pot from Laos.



B. 老撾 Tran-ninh 省的陶拍和陶梳及陶罐
Pottery beater, combs and pot from
Tran-ninh Province of Laos.



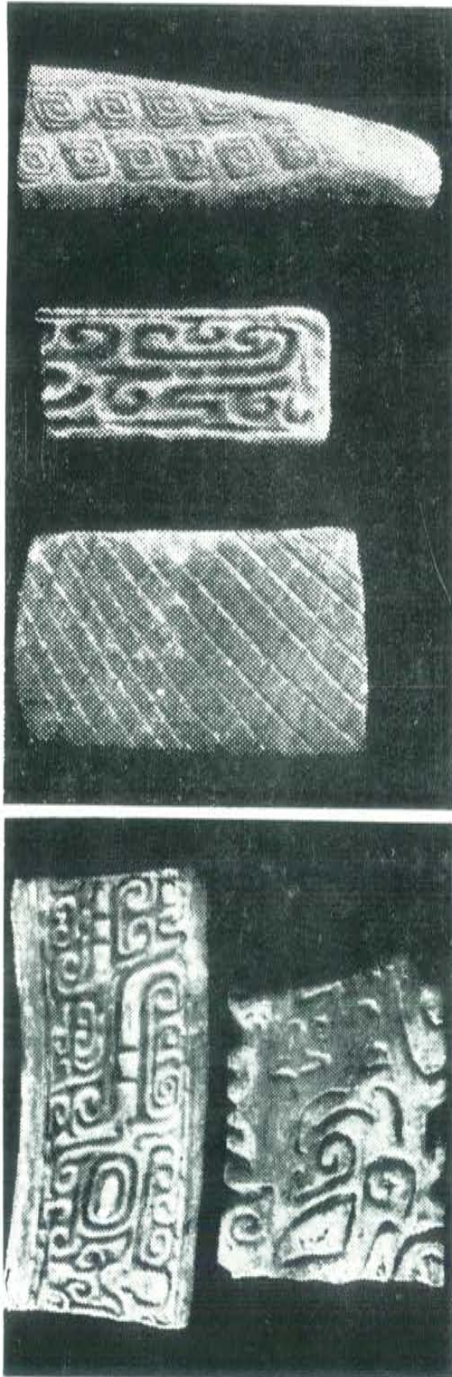
Sema Naga 人製陶器
Pot-making of Sema Naga women



A

A. 福建長汀河田的陶印板

Pottery tablets from Ch'ang-ting, Fuchien.



B

B. 徐州高皇廟的陶印

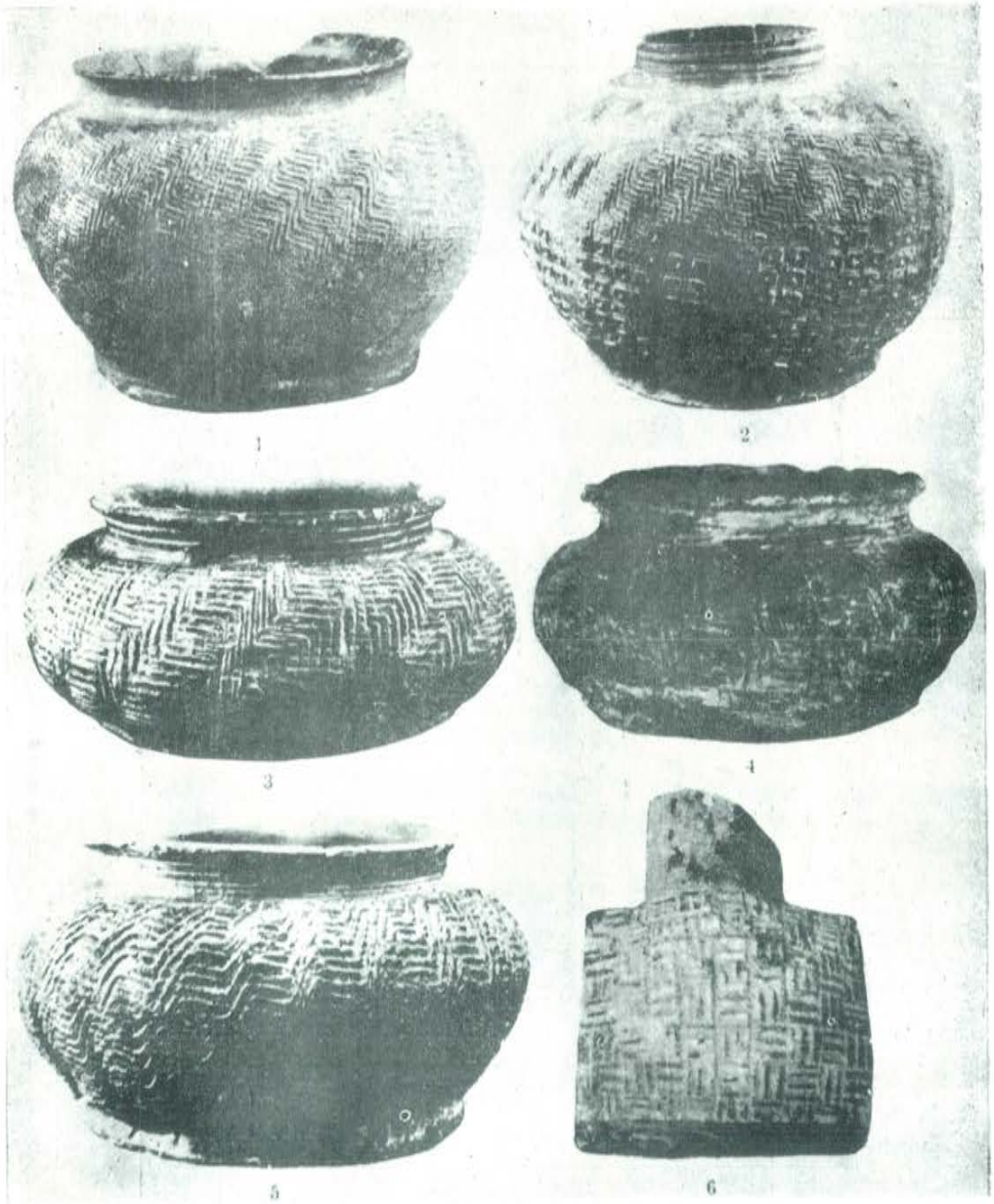
Pottery stamps found in Hsueh-chou, Kiangsu.

C

C, D. 徐州商代的陶印花模

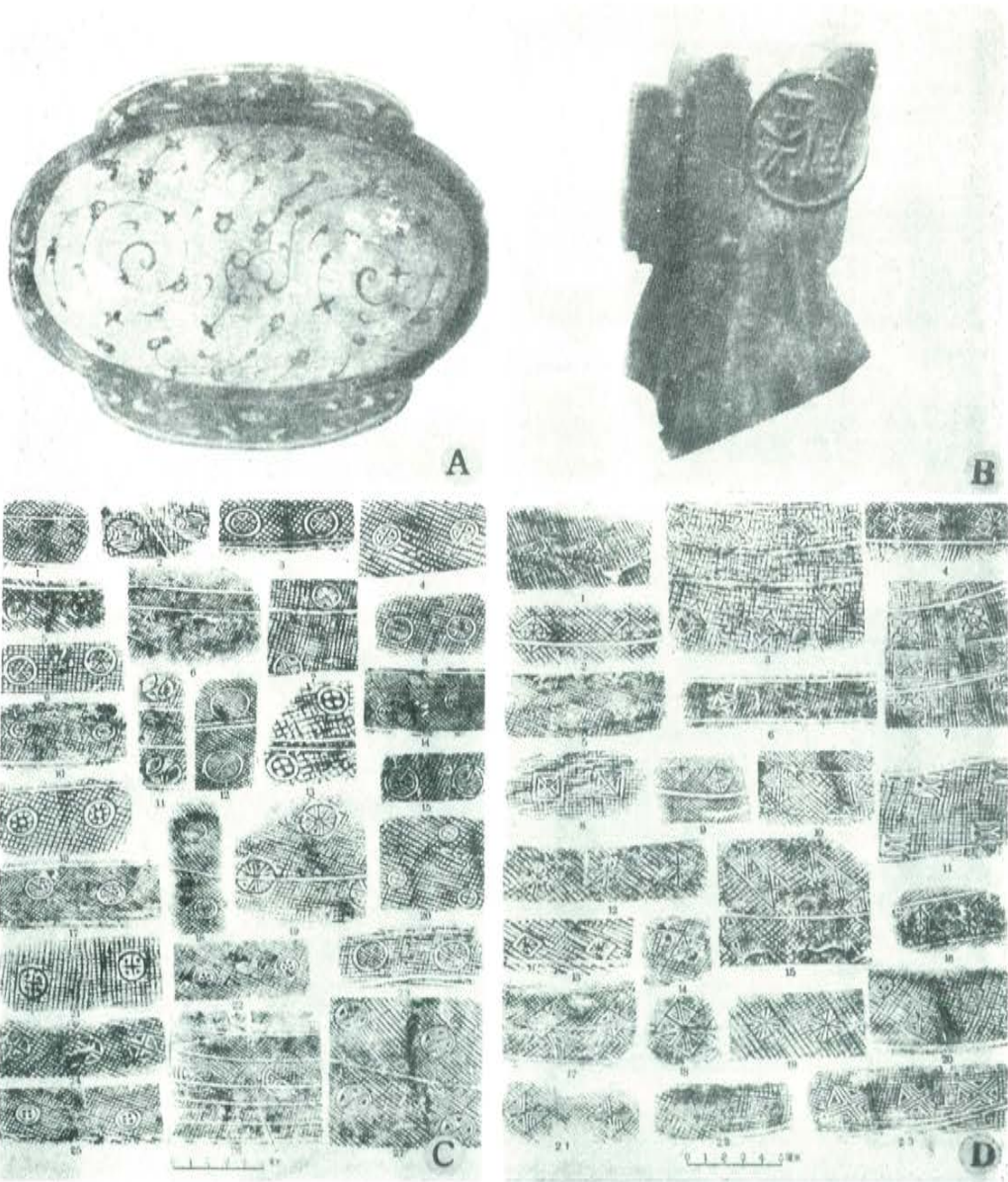
Pottery tablets with incised patterns of Shang Dynasty unearthed in Chengchou, Honan.

D

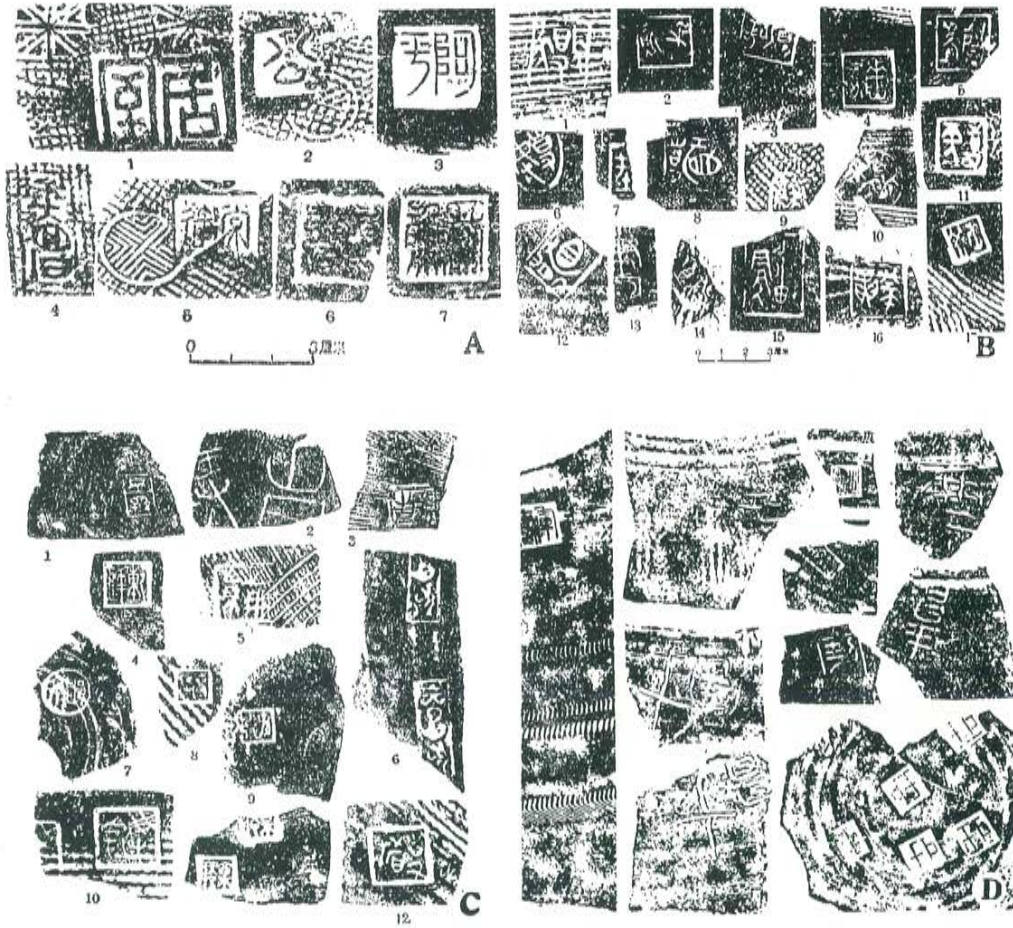


杭州老和山出土的陶甗和陶拍

Pottery beater and pots excavated in Lao-he-shan, Hangchou.



A, B. 長沙出土戰國時代的漆木羽觥
Stamp on wooden wine vessels of Eastern Chou unearthed in Ch'ang-sa
C, D. 廣州出土西漢陶器上的小戳印的紋樣
Pottery stamp designs of Weastern Han excavated in Kwangchou.



周漢時期的陶印文

Pottery seal inscriptions of Chou and Han Dynasties.



秦漢畫瓦

Eaves-tiles impressed with pictures and designs of Chin and Han Dynasties.



1



2



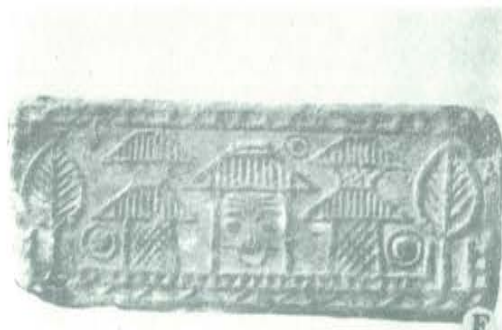
3



4

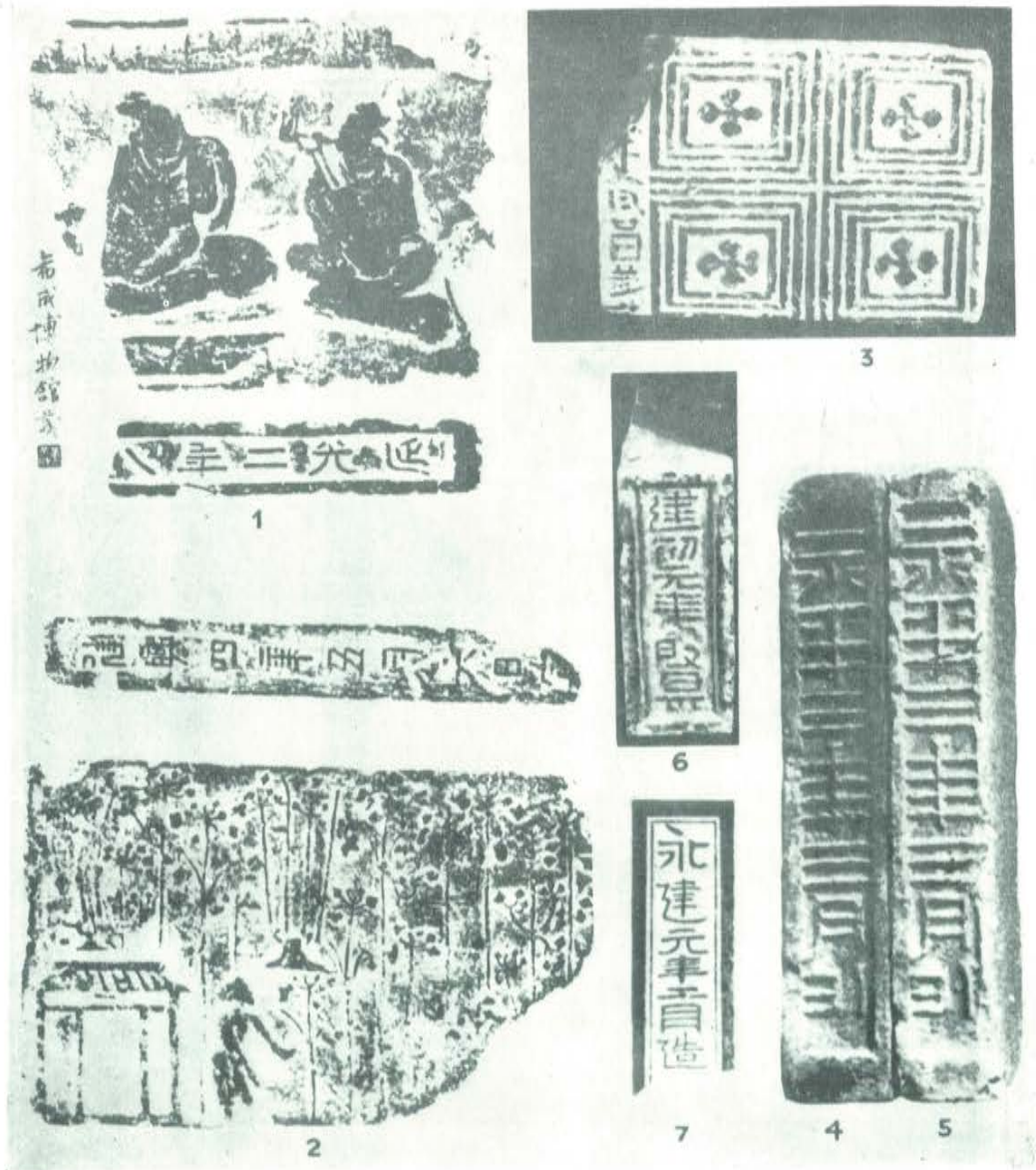
周代的印字瓦當

Inscribed eaves-tiles of Chou Dynasty.



周漢時代的印有花紋和文字的磚瓦

Tiles and bricks impressed with designs and inscriptions of Chou and Han Dynasties.



四川出土漢代的印有圖畫和文字的磚
Pottery bricks impressed with pictures and inscriptions of
Han Dynasty excavated in Szechuan

七 華南與東南亞及中美洲的樹皮布石打棒

樹皮布的源地在亞洲大陸東部，起源的時代現在雖不能確言，然早在新石器時代樹皮布已盛行亞洲大陸及東南亞各地。樹皮布本質及打製樹皮布的木打棒，都是植物纖維易於腐朽，唯有打製樹皮布的石打棒，在新石器時代的遺址中尚可找到。現將在臺灣、菲列賓、馬來亞、中南半島及華南等地已發現新石器時代的遺物，與西里伯斯及墨西哥現尚使用的石製的打棒與槌分述之。

臺灣 在一千七百年前中國文獻上記載臺灣已有樹皮布，直至本世紀初葉，阿美族尚能打製樹皮布。但阿美老人復原做的木和石的打棒甚為粗製，打棒面上多不刻槽條，⁽¹⁾未知是否原來如此，或阿美老人對製樹皮布的技術已遺忘了一部份。因在臺灣東西兩部的遺址中，找到的新石器時代用的石打棒，多數較為精製，面上刻有槽條。在臺灣現已發現的石器遺物的有槽打棒有四種型式：

(一)橢圓打棒 這種打棒可能是由無槽的打棒，進步到有槽條的最簡單的型式。製作簡易，取河岸礫石中扁而長橢圓的，在其一邊的側面上，刻四至六條的長槽，如插圖一為淡水崁頂遺址採集到的標本，現藏臺北縣文獻會，其側面的一半有長槽六條，此器使用時或即握礫石而打樹皮。又插圖二 a 為臺北圓山遺址出土，現藏臺灣省立博物館，此器已殘缺一半，在一側面刻有長槽五條，全長可能有十六、七公分，使用時握器身或可執一端而打。插圖二 b 為臺中大甲水尾溪北岸採集到的，現藏臺灣省立博物館。器亦已殘缺一半，全長約可有十八公分，側面上刻條槽分為兩節，現存上節槽有四條，下節尚留一槽的上端，此器的原料礫石較為狹長，使用時可執一端作為柄而擊打。

(二)直背打棒 這種打棒鹿野忠雄氏名之曰有槽打棒，此一名稱欠妥，因有槽的

(1) 凌曼立，1960，p. 324-326.

(二)直背打棒 這種打棒鹿野忠雄氏名之曰有槽打棒，此一名稱欠妥，因有槽的打棒不止僅此一種，不如用 Beyer 氏起的名稱，稱之曰直背打棒 (straight backed type)⁽¹⁾。據鹿野氏對此打棒描述說：“宮本延人氏曾經報導，基隆與蘇澳新城遺址出土，附有許多平行槽條的板岩製打棒(插圖三)。因為直到最近，阿美族與布農族用為製造印紋陶器的印紋具的木製打棒，也有與其很相似的槽條，故筆者曾經也與報告這些石器的宮本氏相同，以為是印陶紋的印紋具。後來筆者看到了菲律賓出土的同一類石器，因而知道應將其視為製造樹皮布的打棒 (tapa beater)。在筆者其後的調查中，即在鄒族的故址 Beiyo 遺址，掘得此種石器。國分直一氏也得之於高雄縣岡山區小崗山。此外，圓山貝塚，都巒遺址出土，附有格子狀的打棒”⁽²⁾。如插圖四為臺東都巒社遺址發現的方格紋直背打棒，器已殘缺，現藏臺灣省立博物館。插圖五為臺東縣卑南社所發現的斜方格紋直背石打棒，據宋文薰的報告云：“並發現在其一側面刻有方格紋的板岩製石棒，其紋飾與布農族印陶紋用拍板上的紋飾完全相同，但此地陶片皆無此種紋飾，故現在我們祇能照前人的說法，將其認為是樹皮衣料打棒”⁽³⁾。

(三)裝柄打棒 鹿野忠雄氏認為這種打棒是石製印陶紋器(插圖六)，他說：“如上所述，附有槽條的石器多半可視為製造樹皮布用的打棒。不過，我們應該認為臺南博物館藏，臺南縣新營區白河莊白水溪(未到關子嶺之前)所出土，與上述者相同刻有平行槽條，小而長方形的壓印狀的石器(長 12.2cm，砂岩製)，是印陶紋的器具。與此相類之例子，見法屬印度支那，係郭拉尼 (Colani) 女士所報導”⁽⁴⁾。此器用於打製樹皮布的成份大，用以壓印陶紋者小。Beyer 氏稱這種石器為無柄打棒型 (the type lacking a stone handle)，這種打棒使用時須裝上籐柄，至今西里伯斯猶用這種形式的石槌，打製樹皮布。

(四)有角打棒 這種打棒鹿野忠雄氏稱之為菜刀形打棒(插圖七)，Beyer 氏稱為有角型 (the horned type)。在臺灣已發現二件，據鹿野描寫此件標本說：“與上述兩種不同，無槽條凝灰質砂岩製，外形呈有菜刀狀，刃部削鈍，頭部的一隅突出作角狀。出土於高雄縣旗山區溪南山。筆者初對其用途很懷疑，但後得菲律賓的出土品

(1) Beyer, 1948, p. 58.

(2) 宋文薰譯, 1955, p. 37; 鹿野忠雄, 1952, p. 116.

(3) 宋文薰, 1953, p. 14.

(4) 宋文薰譯, 1955, p. 38.

加以比較，而知其為樹皮衣料打棒之一種”(1)。最近盛清沂氏又在臺北縣八里鄉大盆坑遺址發現一件，如插圖八所示，其有角形的一部份已殘缺。

上述四種臺灣新石器時代的樹皮布打棒，現已發現者以第二種直背石打棒為最多，且此型的打棒，在圓山貝塚與都鑾及卑南遺址出土附有格子狀或直槽條，則臺灣的樹皮布石打棒，在東南亞地區中，其形式與槽紋，可算是較多的一地。

菲律賓 菲律賓的樹皮布石打棒，比之臺灣少橢圓的一種，有其餘的三種型式：直背型 (the straight-backed type)，有角型 (the horned type)；和無柄型 (the type lacking a stone handle)。

據 Beyer 氏說，在三型之中以有角型 (插圖九) 在菲律賓羣島分佈最廣，現在各省和各島的新石器時代遺址已發現者有 Rizal, Bulakan, Cavite, Southern Cebu, Misamis-Bukidnon, Cotabato 等地。Beyer 認為此型石器除婆羅洲外，他處尚未發現，故他稱之為菲律賓型。但我們在上面已描述過臺灣亦有此型石打棒。

直背型 (插圖十) 在菲律賓的 Batangas 一地最多，但此處沒有有角型的，在 Rizal 省亦有，他處則在印度支那也發現此型石打棒。

無柄型 (插圖十一) 似較上述兩種有柄型打棒的時代為晚，在菲律賓 Rizal, Batangas, Cebu 等處都有發現。如插圖十一所示的標本為一器的三面，是在 Cebu 島南部新石器時代晚期的遺物。在東南亞其他地區中，則西里伯斯和馬來半島的無柄型石打棒尤具有代表性。

以上三種石打棒槽溝，除直線形尚有方格紋形，又有極少數有角形的。更有早期的無槽的石打棒(2)。

馬來亞 馬來亞半島的樹皮布的石打棒，亦是屬於裝柄一類的錘。如插圖十二所示，取一合用的礫石或一塊石頭，琢和磨成合用的形狀。一端擊鑿和磨成平面，成圓形或橢圓形，上刻方格或菱形紋的條槽；隆起背部近錘面處，有一圈濶槽，用以裝置籐柄。這許多石錘的大小差異很少，大的高90~125mm.，面徑在60~80mm.之間。插圖十二中的 a、b、c 三件出土於 Kelantan 州的 Gua Cha 地方，同時出土者新

(1) 宋文濤譯，1955, p. 37.

(2) Beyer, 1948, pp. 58-61; 1949, p. 371.

石器時代的陶器與墓葬；d 件石槌發現 Kelantan 州的 Sungoi Galar 河流域近 Gua Musang 地方⁽¹⁾。

又如圖版壹所示，為馬來半島各地發現的大小樹皮布石槌，其中最大的長約 9.5 cm，最小的長僅 4.5cm。有兩件在槌背上有裝藤柄的凹痕。在圖版壹左邊的為 Negrito-Sakai 族現用的樹皮布木打棒，在右上角的為蘇門答拉島的西北 Mentawai 島人所用的樹皮布木打槌⁽²⁾。

越南 在中南半島的越南，亦已發見樹皮布的石打棒，如圖版貳 B 所示，石質為葉紋石，呈深灰色，祇知出自越南的 Kontum 地方，餘均未詳。此器長 27 cm，分成柄與身兩部：柄長 15cm，最寬 6.4cm，厚 4 cm；身長 12cm，寬 8 cm，平均厚度 3.4cm，身之一面刻平行和等距的縱槽（圖版貳 B：1）槽寬約 1 mm，兩槽的間距約 2 mm；另一面則為橫槽（圖版貳 B：2），槽寬 0.5~1.9 mm，槽距 3 mm，最大至 4 mm。又圖版貳 A 為老撾現在做陶用的木拍子。

又圖版貳 D 為越南南部 Djiring 地方所發現的。全長 23cm，最寬 5.8cm，最厚 3.3cm。分成兩部：柄長 11.5cm，寬 2.9cm；葉長 11.7cm，寬最下端 5.8cm。葉的兩側多有平行等距的條槽，一面有九條（圖版貳 D：2），另一則有十一條。又圖版貳 C 為老撾 Trân-ninh 省現今製陶用的木拍子⁽³⁾。

高棉 在柬埔寨北部 Kompon Thom 省的 Mlu Prei 地方亦發現一件石打棒，如插圖十三所示，Levy 氏認為這一打棒，極可能是用以打製樹皮布的工具，在今之印度支那山區 (Massifs indochinois) 的居民，尚穿用這種樹皮布⁽⁴⁾。

寮國 在老撾的史前石器中，Pavie 氏亦找到樹皮布的石打棒，著者沒有見到 Pavie 氏的原書，插圖十四——採自 Lévy 氏所引錄⁽⁵⁾。

華南 在上述東南亞的各羣島都發現史前的樹皮布的石打棒，但在亞洲大陸則找到甚少，如在三十二年前 Evans 氏曾說：“在亞洲大陸除了馬來本島外，已發表各

(1) Sieveking, 1956, pp. 78-85.

(2) Evans, 1928a, p. 115, pl. 13:1; 1928b, p. 143, pl. 60:4; 1930, p. 7, pl. 4.

(3) Colani, 1933, pp. 349-351.

(4) Levy, 1943, p. 32, pl. 20.

(5) Pavie, 1904, t. III, pl. II; Levy, 1943, p. 32.

地的石器圖片中，我沒有見到一件樹皮布的石打棒，似乎也沒有這種石器存在的記錄”(1)。根據 Colani 女士的論文，越南已找到兩件石打棒；又據 Levy 氏的報告，老撾和柬埔寨也各找到一件。近年以來華南發見史前的遺址甚多，出土的石器不少，但尚未見到有槽條的石打棒的圖片和紀錄發表。祇有形制近於石打棒而無條槽者，茲述數件於後。如圖版參為浙江杭縣良渚三件石器，形制似乎近石打棒：

A. 施昕更氏稱之為狹長斧。斧身平面等厚，作方柱形，仄面對稱，下端折向刃，而較上式（方柱形斧）為長，長 18cm，濶 36cm，厚 3cm，刃已殘，矽質板岩所製，良渚荀山東麓出土（圖版參：A）。

B. 施氏歸入鎚類。石鎚曾得一件，係粗製石器，良渚棋盤墩黑陶層下部出土，上具握柄便以擊打之用，全長 17.4cm，柄長 9.3cm，錘打之面凹凸粗糙，似久經使用者，石英安山岩所製（圖版參：B）。

C. 施氏分入刀類，稱之為廚刀式。體積巨大，製作粗鈍，確為實用利器，上有圓柄可握，而便於斬劈之用，全重十斤以上，為杭縣石器中之巨擘。柄長 16cm，柄徑 6.5cm；刀身濶 19cm，面濶 16.3cm，為石英安山岩製，良渚古京墩後出土（圖版參：C）(2)。

又杭州西湖西北岸的古蕩遺址所出土的石器中，有兩件可能是用作樹皮布的石打棒，如圖版肆所示：A、全長 13cm，寬 3.5cm，厚 3.2cm，石質為黑色燧石石灰岩；此器有些像上述柬埔寨的石打棒（插圖十三）。B、全長 8.3cm，寬 5.1cm，厚 2cm，石質硅質石灰岩(3)，器形似臺灣（插圖六）和菲律賓（插圖十一）的裝柄石打棒。

在華南其他地區，有福建光澤新石器時代遺址出土遺物中，有一件石器可能是樹皮布的石打棒，如圖版肆 C 所示，林劍氏稱之為帶柄石斧，對於此器的記錄甚簡略祇說：“石斧另有一件帶柄的形制比較特殊(4)”，止此而已。又在南京鎮金村遺址出土的石器中，有一種石拍子，惜圖版肆 D 所示的祇有拍面（working face），未詳其整個形狀。同址出土的石拍子共三件，又有石杵石錘四件。作者懷疑這許多石製的拍、杵、錘等其中或有打製樹皮布用的工具(5)。

(1) Evans, 1930, p. 158.

(2) 施昕更，1938, pp. 35-37.

(3) 衛聚賢，1936, p. 2.

(4) 林劍，1957, p. 32.

(5) 尹煥章，1957, p. 19.

如上述在華南東南地區的江蘇、浙江、福建三省已發現可能是樹皮布石打棒的，亦可分為三型：(一)直背型(圖版叁A，圖版肆A)；(二)厨刀型(圖版叁：B, C；圖版肆C)；(三)裝柄型(圖版肆B)。或許還有一種石槌型(圖版肆D)，因照片上祇有槌面而無槌身，故不敢確言。在華南大陸上所找到的石打棒，根據照片上和記錄中，似乎都是沒有槽條的，在臺灣的阿美族至今猶用無槽的石打棒⁽¹⁾，據Beyer說，菲律賓無槽的是早於有槽的石打棒⁽²⁾，則華南三型無槽的石打棒，較之臺灣與菲律賓同型打棒的時代為早。

以上所述多為新石器時代的石打棒，這一新石器文化一直延續到近代，現在西里伯斯島的Toradja人和墨西哥的Otomi人打製樹皮還用石打棒或槌，再分述之。

西里伯斯 在此島的Toradja人所用的樹皮布打槌是方形的石塊，兩面多有平行的槽條。這種打槌是與史前的石槌有關的。西里伯斯島Toradja人叫此石槌為*watu-ike*，石槌的兩側面鑿有深槽，嵌籐條以裝木柄(插圖十五a)。質料是用蛇紋石呈黯綠色。為該島住在山地的To Ondaé族人專業製造，到平地來交換日用品。他們採石及做好槌頭之後，並用含有salicie酸的樹葉煮過，信以為可加強槌的soul-stuff。煮後取出石槌俟其尚未冷卻，擦上臘使之光滑好看。最大的石槌正面刻三條直槽，反面則有七至九槽；有的正面有十一至十五條直槽，反面則刻二十一條斜槽；有的斜槽多至三十四甚至三十六條者(圖版伍A)⁽³⁾；又有如插圖十五b所示斜十字花紋者⁽⁴⁾。

墨西哥 在中南美洲的印第安人現在打製樹皮布多數是用木打棒。但根據Hunter在五十年前的調查報告，在墨西哥南部的Otomi人，至今尚用與西里伯斯的同樣工具打製樹皮布紙，也是以一塊方形或長方形石塊，面刻許多直槽，在石塊的上端和兩側刻有濶的深槽，用以嵌綁籐條作柄，樹皮紙打成後，再以熨斗狀的石器壓平(圖版伍B)⁽⁵⁾。又如圖版陸為Heyerdahl氏舉出西里伯斯和墨西哥兩地的樹皮布紙及其打

(1) 凌曼立，1960，pp. 324-325.

(2) Beyer, 1948, p. 47.

(3) Hunter, 1957, p. 45.

(4) Kennedy, 1934, pp. 237-240.

(5) Hunter, 1957, p. 28.

棒，可說是完全相似的⁽¹⁾。

結語 根據作者近年對於中國古代樹皮布文化的研究⁽²⁾，現在我們可以假設樹皮布起源於華東及華南，經中南半島及馬來半島而達印尼羣島，向西渡印度洋經 Madagascar 而抵非洲⁽³⁾；東行入太平洋經美蘭尼西亞和玻利尼西亞而達中南美洲，它的主要分佈區域是在環太平洋地區。從樹皮布的打棒去研究這一文化特質，亦可看出他們相互關係的。打棒的材料，最多是用木製，次為石質。如上述的石打棒外，新幾內亞亦有石製的有槽打棒⁽⁴⁾。非洲剛果有用象牙製的（插圖十六 a），美蘭尼西亞新不列顛島是用蚌做槌而裝竹柄（插圖十六 b）⁽⁵⁾，瓜哇甚至以銅為錘頭亦裝竹柄的（插圖十六 c）。至於研究打棒或錘的形制，因為象牙與蚌殼是就地取材，很少形制可言，銅錘是模倣石錘而來的。木製打棒的型式是大同小異。唯有石製的打棒或錘具有個性的。石打棒在華南、臺灣、菲列賓多有直背型、厨刀型、裝柄型三種。這第三種型是最後也是最進步的一式，由於杭州的原始式（圖版肆 B），進而為臺灣（插圖六）與菲列賓的（插圖十一）側面式，最後成為西里伯斯和墨西哥相同的正面式。瓜哇的銅打棒的錘是做西里伯斯式的。至於馬來半島石礮磨成一面圓形或橢圓石錘，有時亦裝柄，與方形的石錘功用是相同，不過型式各異而已。

(1) Heyerdahl, 1952, p. 133, pl. 1.

(2) 凌純聲, 1961, pp. 1-11.

(3) Sieveking, 1956, p. 78.

(4) Blackwood, 1950, pp. 27-29.

(5) Hunter, 1957, p. 32, Fig. 25.

STONE BARK CLOTH BEATERS OF SOUTH CHINA SOUTHEAST ASIA AND CENTRAL AMERICA*

Bark cloth was originated in the eastern part of the Asiatic Continent. Although the exact time of its origin cannot be ascertained now, its distribution even in as early as the Neolithic Period covered a wide area of the Asiatic Continent and various places of Southeast Asia. Due to the fragility of plant fibres, bark cloth and wooden bark cloth beaters were decayed easily. As a result, only stone bark cloth beaters can still be found, at the present time, among the remains of the Neolithic Age. Described below are the Neolithic relics discovered in Taiwan, Philippines, Malaya, Indo-China and South China. And the stone beaters and pounders which are still in use today in Celebes and Mexico are also retailed.

TAIWAN

Records indicating bark cloth being in existence on Taiwan are found in some Chinese documents which were written about 1,700 years ago. Even as late as the beginning of this century, the aboriginal Ami people still could make bark cloth by the beating process. But the wooden and stone beaters some of the old Ami aborigines reproduced then were coarse in workmanship and, in most cases, without carved grooves in the working surface.⁽¹⁾ It is not known whether such reproductions were just like the primitive beaters or these old aborigines had forgotten some details of the ancient manufacture skill. As a matter of fact, the majority of the stone beaters found at the Neolithic sites in East and West Taiwan were implements of rather fine workmanship and with grooved surface.

The stone beaters among the ancient stone implements discovered on Taiwan are grouped into four types as follows:

1. OVAL PEBBLE BEATERS: It seems likely that this type was the initial form of grooved beaters resulting from the development of ungrooved beaters. The manufacture process of beaters of this type was very simple. At first, a flat, elongate oval pebble was gathered from the river bank, then from 4 to 6 long grooves were cut into the face of one side. Fig. 1 below is a specimen, which was unearthed at the Kan-ting 坎頂 site of Tamsui 淡水, Taipei County. It is now kept at the Taipei Hsien Wen Hsien Hui (The Historical Research Commission of Taipei County), and

* This paper is prepared for presentation before the Second Biennial Conference of International Association of Historians of Asia to be held in October, 1962, at Taipei, Taiwan.

(1) Ling, Mary 1960, pp. 324-326.

one side of which bears 6 long grooves over half of its entire surface. It is imagined that this implement was held by one end of the stone, while being used to strike the bark.

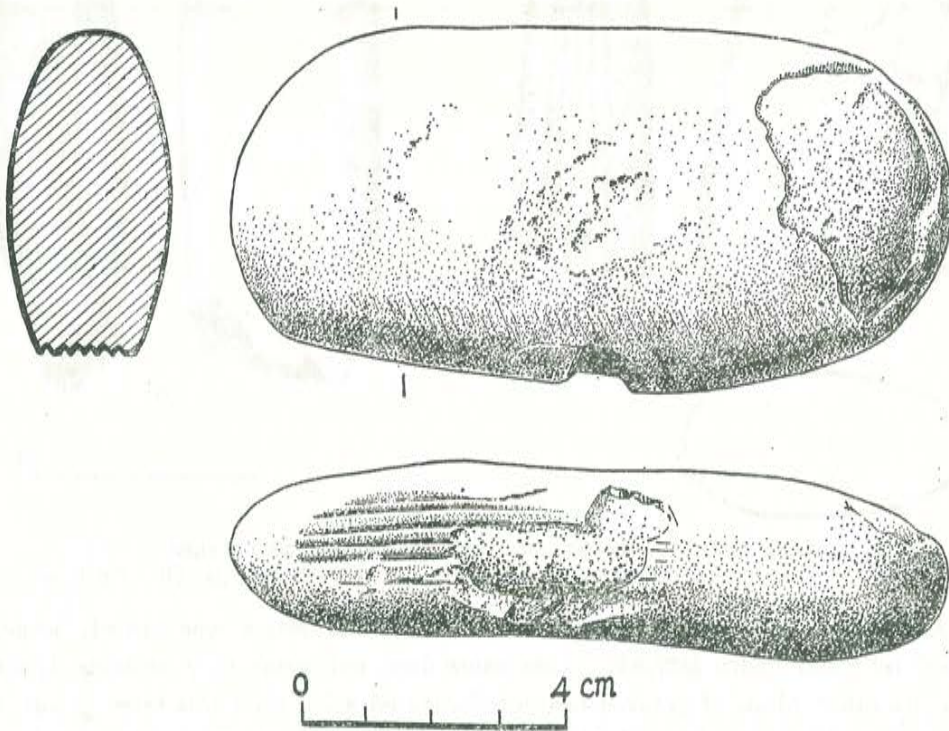


Fig. 1. Oval pebble beater with straight grooves, unearthed at the Kan-ting 坎頂 site of Tamsui 淡水, Taipei County.

Fig. 2a is a specimen, which was originally excavated at the site of Yuan-shan, 圓山, Taipei and is now preserved in the Taiwan Provincial Museum. This implement is incomplete for half of the original work was broken off. There are five grooves in one side. It can be imagined that this beater probably measured as long as 16 to 17 c.m. originally. In all probability, this beater was held at either the center or end while being used to strike.

The specimen in Fig 2b was originally dug out on the northern bank of Sui-wei 水尾 River, Ta-chia 大甲, Taichung County and is now kept in the Taiwan Provincial Museum. This is also an incomplete specimen since half of the original instrument was broken off. It may be estimated that the total length of the original instrument was about 18 c.m. Grooves were carved in its side in two sections, but only 4 grooves of the upper section are now seen in this surviving half of the instrument. As this instrument is made of a piece of narrow, long pebble, it seems obvious that it was grasped by one end as a handle, while being employed to beat the bark.

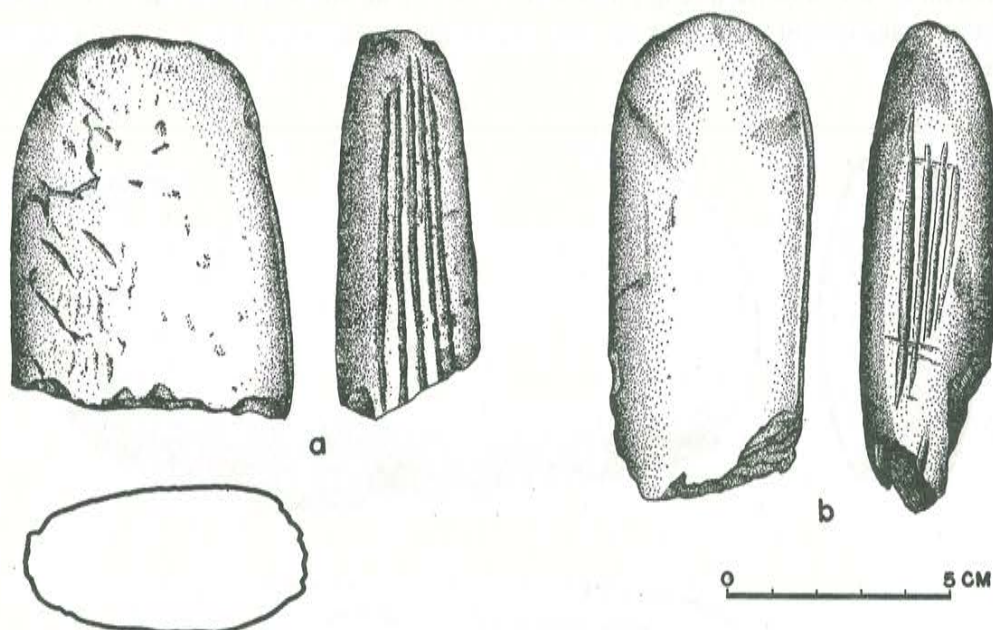


Fig. 2. a. Long oval pebble beater unearthed at Yuan-shan 圓山, Taipei.
 b. Oval pebble beater found at Sui-wei River 水尾溪, Ta-chia 大甲, Taichung.

2. STRAIGHT-BACKED BEATERS: This type of beater was named "grooved beater" by Kano Tadao 鹿野忠雄. This name does not seem very suitable because there are other kinds of grooved beaters discovered aside from this type. Thus, the name, "Straight-backed Beater", given by Beyer, is considered more fitting.⁽¹⁾ In his description of such beaters (Fig. 3), Kano stated: "Miyamoto Nobuto 宮本延人 has made a report of the slabstone beaters engraved with many parallel grooves unearthed at the Keelung and Hsin-chen 新城, Su-ao 蘇澳 sites. Until the recent past, the wooden beaters the Ami and Bunun aborigines employed for decorating pottery ware had the same kind of grooving as that in the above-mentioned slabstone beaters. For this reason, I once shared Miyamoto's view and thought they were pottery-printers. But later, after seeing the stone implements identical with this type excavated in the Philippines, I began to believe that they should be regarded as bark-cloth beaters (tapa beaters). In one of my past field survey trips, I discovered one specimen of this type at the ruins of Beiyo, the former site of Tso Tribe. Kokubu Naoichi 國分直一 also gathered a specimen of this kind at Hsiao-kang-shan 小崗山 of Kangshan 岡山 District, Kaohsiung County. In addition, stone beaters with checker or cross-hatching designs have been found from the excavations at the Yuan-shan and Tu-lan 都鑾 sites."⁽²⁾ Fig. 4 is the straight-backed beater with checker pattern discovered

(1) Beyer, 1948, p. 58.
 (2) Kano, 1952, p. 116.

at the Tu-lan 都蠻 site of Taitung. This specimen, partially disfigured, is now kept at the Taiwan Provincial Museum.

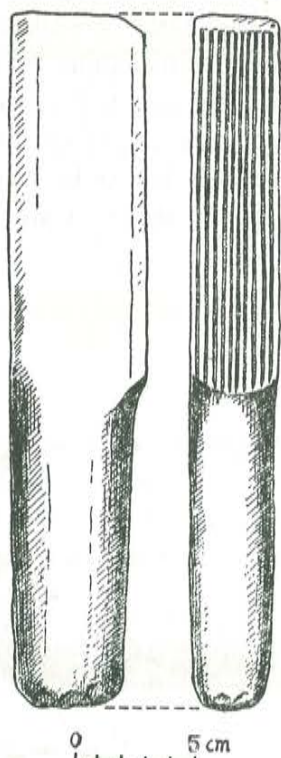


Fig. 3. Grooved stone beater unearthed at Keelung. (After Sung, 1956.)

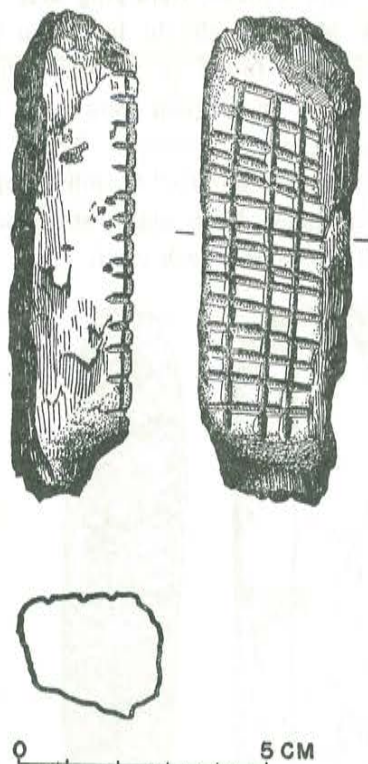


Fig 4. Straight-backed stone beater with checker pattern found at the Tu-lan 都蠻 site of Taitung.

The specimen in Fig. 5 is a straight-backed stone beater with oblique cross-hatching pattern, originally discovered at Pi-nan-she 卑南社, Taitung County. Sung Wen-hsun 宋文薰 stated in his report: "Also observed in one side of which was a slabstone beater with checker pattern, the striation of which was in resemblance to the decorative engraving in the pottery-printers of the Bunun Tribe. But, no such striation has been observed in the pottery fragments found in this locality. Therefore now, we can only accept the former scholars' opinion and consider it as a barkcloth beater."⁽¹⁾

3. STONE BEATERS WITH A SEPARATE HANDLE (Beaters lacking a stone handle): Kano assumed that beaters of this type were stone pottery-printers. He stated: "As described above, most of the grooved stone implements may be regarded as beaters used in the manufacture of bark cloth. However, the rectangular stone

(1) Sung, 1953, p. 14.

instrument (12.2 cm long, made of sandstone), in the form of a stamp, with same parallel grooves as described above, which was originally unearthed at Peh-sui-shi 白水溪, Peh-ho 白河 Village, Hsin-ying 新營 District, Tainan County and is now kept in the Tainan Museum, should be taken as a sort of pottery-decorator. Parallels to this specimen are found in Colani's report of the excavation in Indo-China."⁽¹⁾ In my opinion, this instrument was used originally more possibly as a bark-cloth beater than as a pottery-decorator. Beyer called this type of stone implement "the type lacking a stone handle."⁽²⁾ For employment, a rattan handle had to be fastened to this implement. Even today, stone pounders similar to this in shape are still used in Celebes in making bark cloth.

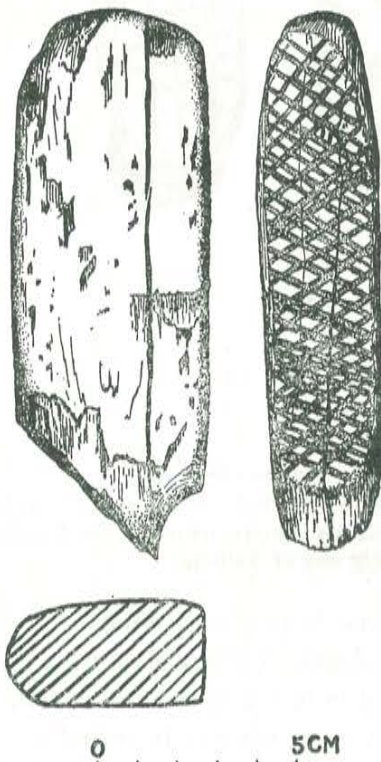


Fig. 5. Straight-backed stone beater with cross-hatching design discovered at Puyuma Village, Taitung County. (After Sung, 1953.)

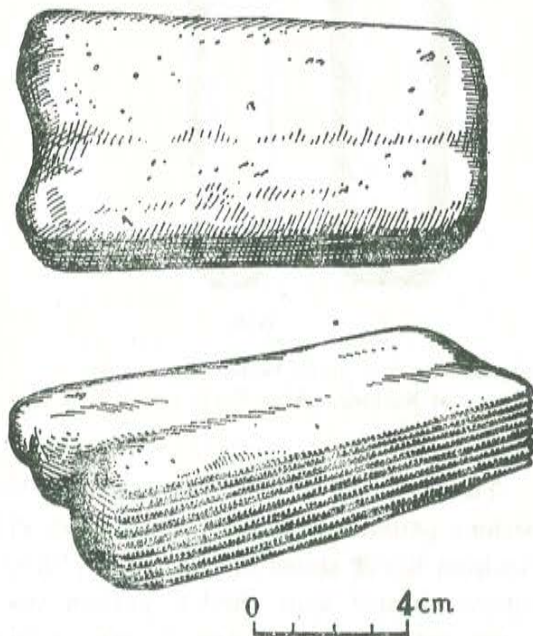


Fig. 6. Stone beater without a fixed handle unearthed at Pei-sui-shi 白水溪, Tainan. (After Kano, 1952.)

4. HORNED STONE BEATERS: Kano described this type of beater as "kitchen-knife (in the form of a cleaver) shaped beater" (Fig. 7), while Beyer classified it as "the horned type". To date, 2 specimens of this type have been discovered on

(1) Kano, 1952, p. 117.

(2) Beyer, 1948, p. 60.

Taiwan. In depicting this specimen (Fig. 7), Kano remarked: "It is different from the above-mentioned 2 types. It is made of a sort of solidified limestone and ungrooved. It is in the form of a kitchen knife, with the blade portion blunt and with one protrusion in the form of a horn on its head. This was unearthed at Shi-nan-shan 溪南山, Chi-shan 旗山 District, Kaohsiung County. At first, I was

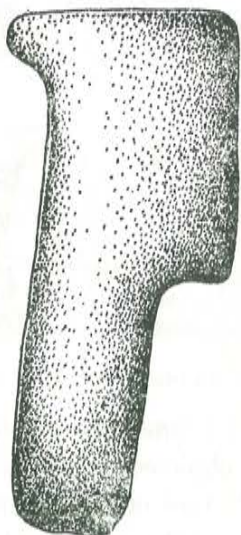


Fig. 7. Horned stone beater excavated at Shi-nan-shan 溪南山, Chi-shan 旗山 District of Kaohsiung. (After Kano, 1952.)

uncertain about its function, but I found out later that it was a sort of bark-clothing beater, through comparing it with like articles excavated in the Philippines."⁽¹⁾ Recently, Mr. Sheng, Ching-yi 盛清沂 discovered another specimen of this type (Fig. 8) at the Ta-peng-keng 大盆坑 site of Pa-li Hsian 八里鄉, Taipei County, with a portion of the horn already broken off.

Of all of the Taiwan Neolithic bark-cloth beaters of the foregoing four types which have been discovered to date, the straight-backed, parallel-grooved stone beaters of the second type rank first in amount. Moreover, several checkered or cross-hatched beaters were also unearthed at the Yuan-shan, Tu-lan and Puyuma sites. In comparison with the survivals of similar implements in other areas of Southeast Asia, the stone bark-cloth beaters found in Taiwan display a rather great variety of shapes and patterns.

PHILIPPINES

The stone bark-cloth beaters which have been found in the Philippines are identical with those discovered in Taiwan. They include the Straight-backed Type;

(1) Kano, 1952, pp. 116-117.

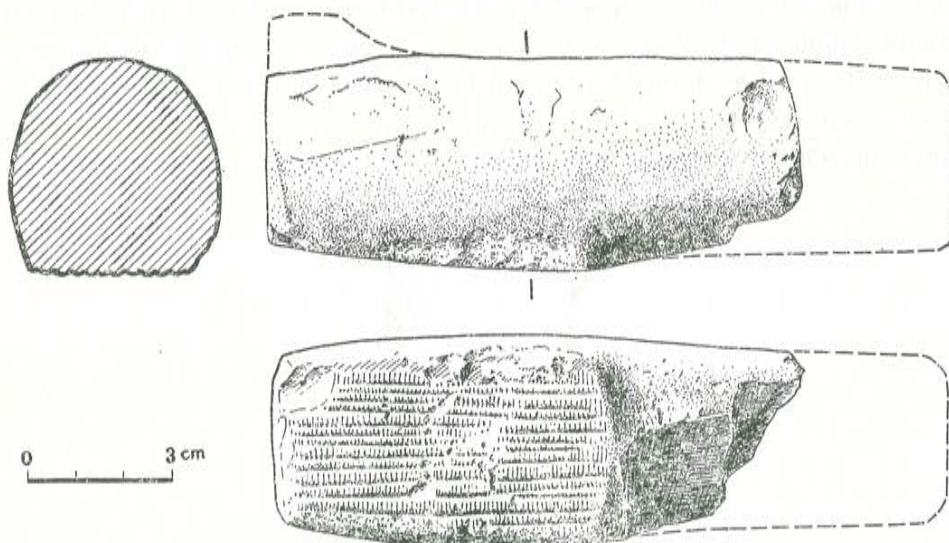


Fig. 8. Horned stone beater found at Ta-pen-keng 大盆坑, Pa-li Hsian 八里鄉, Taipei County.

the Horned Type; and the Type Lacking a Stone Handle, but no specimens of the Taiwan Oval Type have yet been observed in the Philippines.

Based on Beyer, the "horned" type of beaters of above 3 types (Fig. 9) is the most widespread in the Philippines, and is at present known from Neolithic sites in the following provinces and islands: Rizal, Bulakan, Cavite, South Cebu, Misamis-Bukidnon, and Cotabato. Inasmuch as it was not known to him from any other region except Borneo, Beyer specifically called it the "Philippine" type. Butas discussed previously, stone beaters of this type have also been found in Taiwan

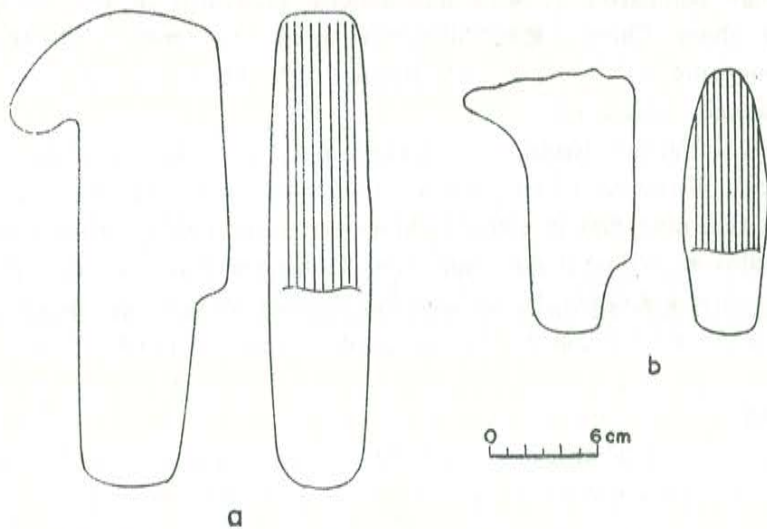


Fig. 9 Philippine horned stone beaters. (After Beyer, 1949.)

The largest number of beaters of the straight-backed type (Fig. 10) were found in Batangas, where, however, no beaters of the horned type have been discovered. Stone beaters of the straight-backed type were also known from Rizal Province and Indo-China.

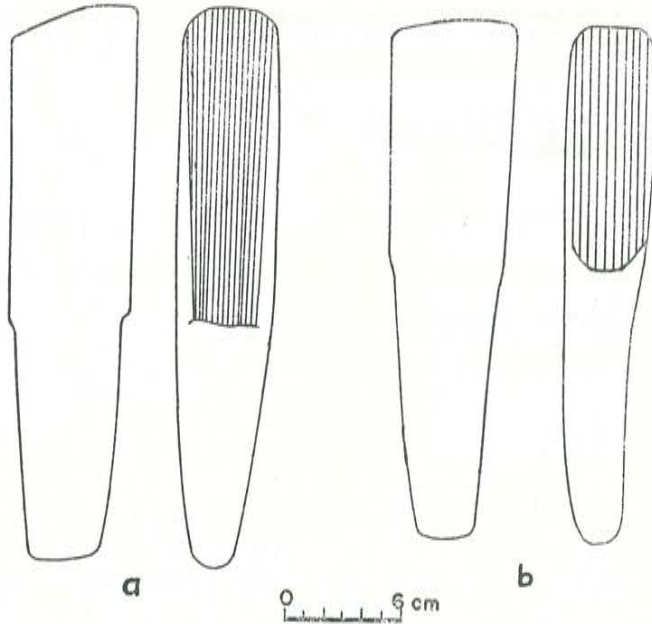


Fig. 10. Philippine straight-backed stone beaters. (After Beyer, 1948.)

Bark-cloth beaters without a stone handle (Fig. 11) appear to be of somewhat later date than the above mentioned 2 handled-types. The areas of their occurrence in the Philippines include Rizal, Batangas and Cebu, Fig. 11 illustrates 3 sides of a late Neolithic relic originally discovered in South Cebu. Of all other Southeast Asian regions, the stone beaters without a handle of Celebes and the Malay Peninsula are most characteristics of this type.

The grooving seen in the above 3 types of stone beaters consists of parallel, checker, cross-hatching and, in a few cases, angular patterns. In addition, there are also early Neolithic ungrooved stone beaters.⁽¹⁾

MALAY PENINSULA

The stone bark-cloth beaters found in the Malay Peninsula belong to the handled pounder class. Fig. 12 is an example. It can be inferred that such instrument was originally manufactured in the following processes: A suitable pebble or piece of rock is first pecked or ground into a fit shape. Then one end of it is made into a flat surface, round or elliptic in form, by means of cutting, chiseling and grinding. A number of grooves in the cross-hatching or checker-board pattern are then carved into the flat surface, with an encircling broad groove cut in the raised portion of its

(1) Beyer, 1948, pp. 58-61; 1949, p. 371.

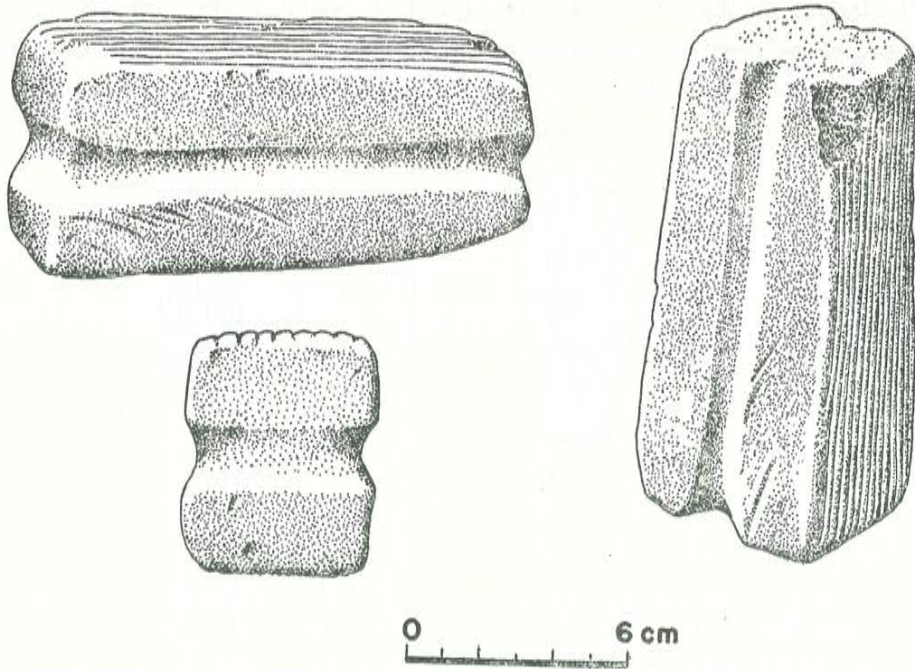


Fig. 11. Philippine stone beater lacking a stone handle. (After Beyer, 1948.)

back just above the working surface whereby a rattan handle can be attached to this instrument. There is little variation in size of the tools of this type found in Malaya. They are between 80-125 mm high, and the working surface is usually between 60-80 mm in diameter. Fig. 12 a, b and c illustrate 3 associated finds, namely, Neolithic pottery and burials, from the Gua Cha site of Kelantan Province; while, exhibits a stone bark cloth pounder found on the Sungai Galas near Gua Musang (Kelantan).⁽¹⁾

Plate I illustrates the stone bark-cloth pounders of varied sizes discovered in different places of the Malay Peninsula, the largest of which is 9.5 cm in length and the smallest merely 4.5 cm long. A rut for holding a rattan handle can still be seen in the back of two of these artifacts. On the left of the Plate is an example of the wooden bark-cloth bats currently in use amid the Negrito-Sakai aborigines. The instrument shown on the right is a wooden bark-cloth hammer originally acquired from one of the Mentawai Islands, northwest of Sumatra.⁽²⁾

VIETNAM

Stone bark cloth beaters have also been reported from Vietnam of Indo-China. Plate IIB furnishes one example of the Vietnamese beaters, which, made of a sort of dark grey rock with leaf-vein markings, was originally found at Kantum of

(1) Sieveking, 1956, pp. 78-85.

(2) Evans, 1928a, p. 115, pl. 43:1; 1928b, p. 143, pl. 60:4; 1930, p. 7, pl. 4.

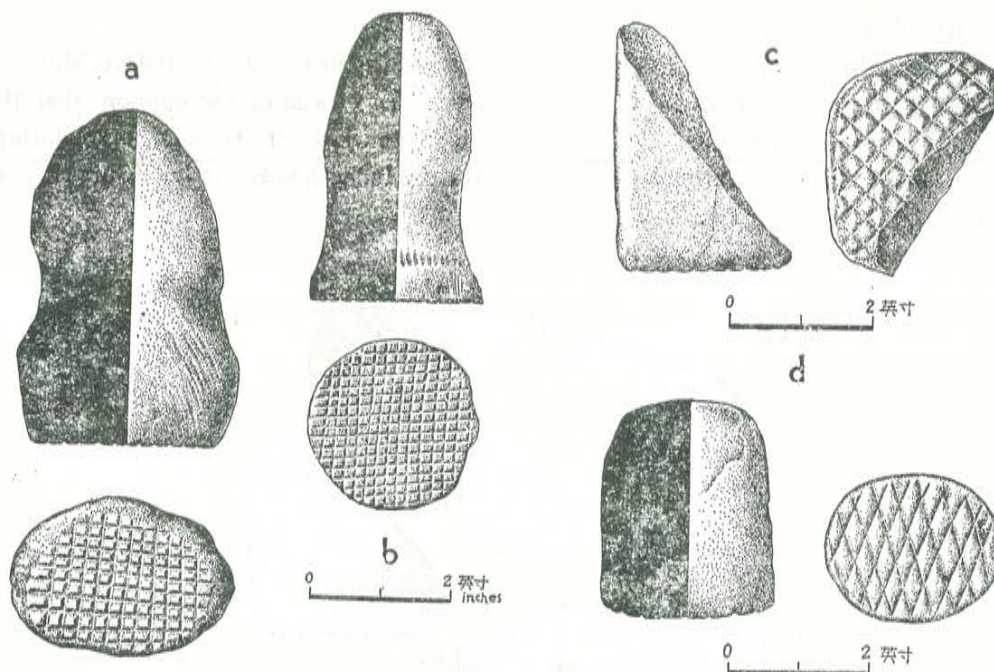


Fig. 12. Malayan stone bark cloth beaters. (After Sieveking, 1956.)

Vietnam. Other details concerning this artifact are, at present, not available. This tool, 27 cm in length, consists of two parts: the handle and the body. The former is 15 cm long, 6.4 cm broad at the widest point, and 4 cm thick, and the latter is 12 cm long and 8 cm wide, with an average thickness of 3.4 cm. A number of parallel and evenly-spaced vertical grooves are cut in one side of the body (Plate IIB: 1). The breadth of each groove is approximately 1 mm and the distance between every two grooves is about 2 mm. Executed in the other side are horizontal channel (Plate IIB: 2); each channel is 0.5-1.9 mm in width and the intervals between channels range from 3 mm to 4 mm.

Exhibited by Plate IIA is a sample of the wooden bats which are still being used in Laos at the present time in the manufacture of pottery.

The artifact shown by Plate IID was originally brought to light in Djiring of South Vietnam. Its total length is 23 cm. It measures 5.8 cm at the widest portion and 3.3 cm at the thickest point. It is composed of two components: the handle and the blade. The handle is 11.5 cm long and 2.9 cm broad; the blade is 11.7 cm long and 5.8 cm wide at the broadest point. Equidistant parallel grooves are cut in both sides of the blade, with 9 grooves (Plate IID:2) in one side, and 11 in the other.

The tool, as seen in Plate IIC, is one of the wooden bats now in use in the Tran-ninh Province of Laos in the ceramic handicraft.⁽¹⁾

(1) Colani, 1933, pp. 349-351.

CAMBODIA

The article shown in Fig. 13 is a stone beater originally discovered at Mlu Prei of Kampon Thom Province in North Cambodia. Levy was of the opinion that this beater was, more than likely, a tool used in making bark cloth, for such bark clothing is still being used by the mountaineers (Massifs Indochinois) in Indo-China even today.⁽¹⁾

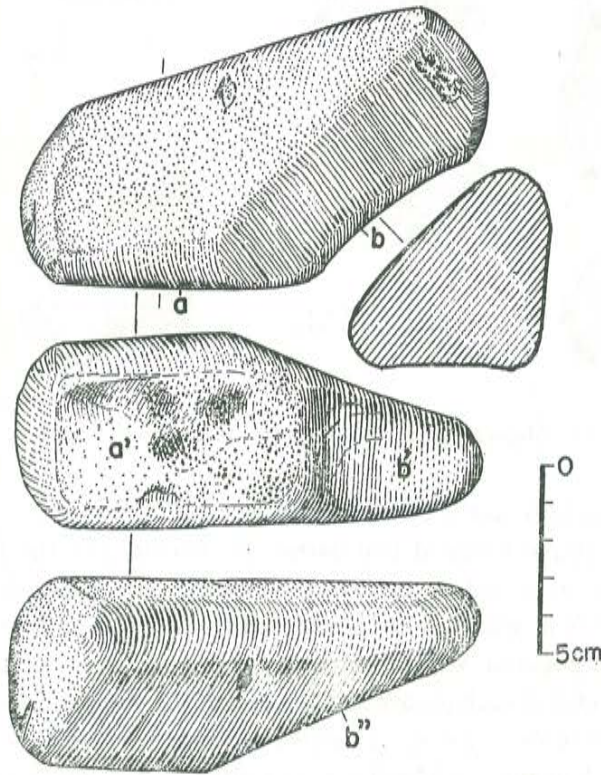


Fig. 13. Stone bark cloth beater from North Cambodia. (After Levy, 1943.)

LAOS

Pavie reported that he found some stone bark-cloth beaters among the prehistoric stone implements excavated in Laos. Unfortunately, Pavie's report has not been available to me as of this date; Fig. 14 is based upon the extract Levy made in his work.⁽²⁾

SOUTH CHINA

Prehistoric stone bark-cloth beaters or pounders have been excavated in each of the foregoing archipelagos of Southeast Asia; but few occurrences of like artifacts

(1) Levy, 1943, p. 32, pl. 20.

(2) Pavie, 1904, t. III, pl. II; Levy, 1943, p. 32.

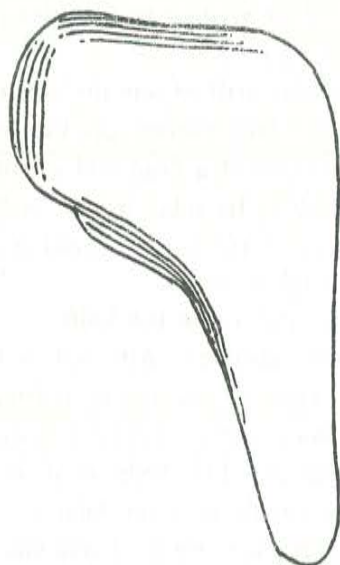


Fig. 14. Stone bark cloth beater from Laos. (After Pavie, 1904.)

in the Asiatic Continent have been reported. Evans made the following statement 32 years ago: "Amidst all the pictures of stone implements reported from various places of the Asiatic Continent, except the Malay Peninsula, I have been unable to find even one stone bark-cloth beater. Perhaps, no record has ever been made that indicates the existence of such stone instruments."⁽¹⁾ Based upon a document completed by Dr. Colani, two specimens of stone beaters have been found in Vietnam; and in accordance with Levy's report, one each such tool has been discovered in both Laos and Cambodia.

In recent years, a number of prehistoric sites have been found in South China and many stone implements have been unearthed; but not a single record of grooved stone beater has yet been found in reports of archaeological finds that have been published. Nevertheless, a few ungrooved artifacts resembling, in some degree, the stone beaters in shape and pattern, have been discovered in South China, some of which are portrayed in the following:

Illustrated in Plate III are 3 pieces of stone implements which were originally dug out from Liang-chu 良渚, Hang Hsien 杭縣, Chekiang Province and may be likened to the stone beater in appearance and pattern.

Plate III A:—Sze, Hsin-keng 施昕夏 regarded it as a narrow, long adze. The body of it is in the form of a square pillar, of even thickness and with a flat surface on all sides. Its two slanting sides are symmetrical and tapering off to the edge. It is 18 cm long, 3.6 cm broad and 3 cm thick. It is made of a sort of siliceous stone and

(1) Evans, 1930, p. 158.

the edge is partially broken. This artifact was originally unearthed on the east side of Hsun 荀 Mountain of Liang-chu.

Plate III B:—Sze classified this artifact into the hammer family. It was unearthed from the bottom portion of the Black Pottery Stratum at the Chi-pan-fen 棋盤坟 site of Liang-chu. This tool, consisting of a head and a handle, was rudely carved from a piece of quartziferous andesite. Its total length is 17.4 cm and the handle alone measures 9.3 cm long. The face of the hammer-head now appears uneven and coarse. This probably resulted from long wear.

Plate III C:—Sze put this article into the knife family and described it as being in the shape of a kitchen-knife (cleaver). Although it is huge and made with rude craftsmanship, it must have been a very useful cutting or cleaving tool. A round handle protruding from the body makes it easy to manipulate. It was carved from a piece of quartziferous andesite. The body of it is 19 cm broad with the blade measuring 16.3 cm wide. Its handle is 16 cm long and 6.5 cm in diameter. It was originally unearthed at Ku-ching-fen 古京坟, Liang-chu and is a giant amid all the stone implements found in Hang County.⁽¹⁾

Further, the two pieces, as shown by Plate IV, originally dug out together with other stone implements from the remains at Ku-tang 古蕩 on the northwestern bank of the West Lake of Hang-chow, might possibly be some sort of stone beaters for use in making bark cloth. The piece in Plate IV A, made of a piece of black flint limestone, is 13 cm long, 3.5 cm wide and 3.2 cm thick. This implement may be likened, in some way, to the previously described Cambodian stone beater (Fig. 13). The piece, shown in Plate IV B, cut out of silicic limestone, measures 8.3 cm long, 5.1 cm broad and 2 cm thick.⁽²⁾ This instrument may be compared to the Taiwan (Fig. 6) and Philippine (Fig. 11) stone beaters with a separate handle.

In other areas of South China, one piece of stone implement, as manifested by Plate IVC, was found among the ancient artifacts excavated from the ruins of Stone Age at Kwang-che 光澤, Fukien Province, which might probably be a bark cloth beater. Lin Chao 林釗 called it a hilted stone axe, but he provided merely the following short description concerning it: "There is another specimen of stone axe with a handle which appears rather peculiar in shape and pattern."⁽³⁾ Besides, a stone pounder occurred at the site of So-chin 鎖金 Village, Nanking. Unfortunately, Plate IV D furnishes us only a view of its working face, and there is now no way available to find out what the original tool looked like. Based on reliable records, altogether 3 stone paddles, as well as 4 stone pestles and pounders were excavated at this site.⁽⁴⁾ It seems to me quite likely that some of these stone articles were

(1) Sze, 1938, pp. 35-37.

(2) Wei, 1936, p. 2.

(3) Lin, 1957, p. 31.

(4) Yin, 1957, p. 19.

tools used in the bark-cloth handicraft in ancient times.

In accordance with the foregoing discussion, the implements, which have been reported from areas in the southeastern part of South China and were probably stone bark-cloth beaters of old times, may also be grouped into 3 categories; (1) Straight-backed type—Plate IIIA and Plate IVA; (2) Kitchen-Knife type—Plate IIIB and C, and Plate IVC; and (3) The type with a separate handle—Plate IVB. Perhaps the stone pounder, (Plate IVD), might be classified as an additional type. However, this can not be definitely asserted at the present time, for the plate exhibits only its working face and what its body looked like is beyond our knowledge. As a matter of fact, it may be concluded, based upon available data and documents, that almost all of the stone beaters found in the southern part of the Chinese Mainland are ungrooved. Even at the present time, ungrooved stone beaters are still in use in the Ami Tribe of Taiwan.⁽¹⁾ As stated previously by Beyer, the Philippine ungrooved stone beaters dated from earlier periods than those with grooves.⁽²⁾ Accordingly, the three types of ungrooved stone beaters found in South China must have originated, in all likelihood, earlier than their parallels discovered in Taiwan and the Philippines.

Much has been described so far about the Neolithic stone beaters. In fact, this Neolithic culture has continued in existence up to the modern period. Nowadays, the Toradja of Celebes and the Otomi of Mexico are still using stone beaters or pounders to make bark cloth.

CELEBES

The bark-cloth beater used among the Toradja on Celebes has a flat stone head, usually square in shape and with parallel grooves on both sides. Such beater may be related to similar artifacts of the prehistoric period. Deep grooves are cut in the narrow sides of the stone head whereby a wooden handle (Fig. 15a) is tied to the stone head with rope or rattan strips. The stone used in the Toradja beaters is serpentine, dark green in colour. Such stone is always called *watu-ike* (beater stone) by the Toradja. The To Ouda'e, a mountain tribe, are the exclusive possessors of the art of quarrying and manufacturing the stone for beater-heads, and they barter the finished heads for other products with the lowland people. They quarry the stone with axes, and make the grooves with knives. After the grooves have been made, the head is cooked in water containing certain kind of leaves containing salicylic acid in them and this process is believed to strengthen the 'soul-stuff' of the pounder. After the cooking process, the stone, while still warm, is rubbed with wax to make it smooth and bright. The largest pounder has 3 vertical grooves on one side and 7 to 9 on the reverse. In some cases, there are 11 to 15 vertical grooves

(1) Ling, Mary 1960, pp. 324-325.

(2) Beyer, 1948, p. 47.

on one side and 21 diagonal grooves on the reverse. In other cases, there are as many as 34-36 diagonal grooves on one side (Plate VA).⁽¹⁾ In still other cases, identical indented rosettes are engraved (Fig. 15b).⁽²⁾

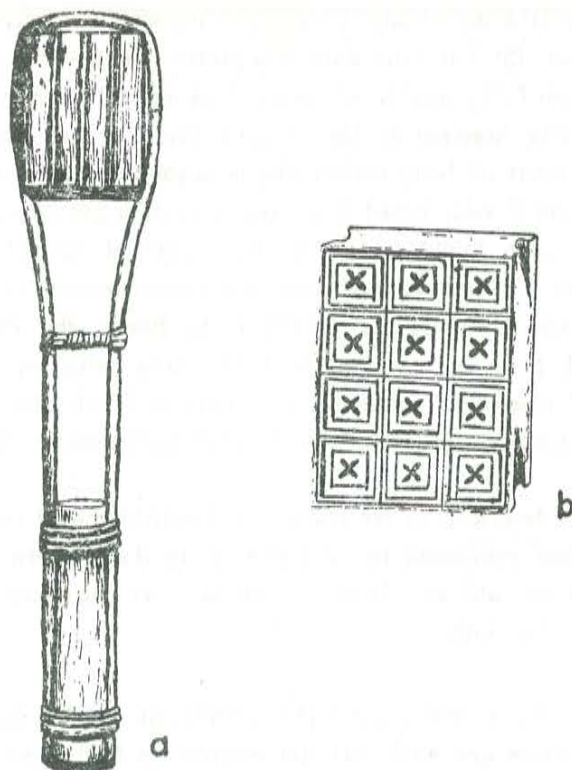


Fig. 15. Beater and beater-head from Celebes:
 a. stone head with rattan holder.
 b. stone head engraved with cross patterns. (After Kenney, 1934):

MEXICO

Nowadays, wooden mallets are mostly used by the various Indian tribes in Central and South America in their bark-cloth industry. Based on a survey report completed by Hunter, 50 years ago, the Otomi people in the southern part of Mexico today are still using a type of tool, similar to the stone beater of Celebes, in making bark-cloth paper. It is also made with a piece of rock, square or oblong in shape, with its working surface engraved with a number of straight grooves. Cut in the upper end and in both sides are deep broad grooves, by passing rattan strips through which, a handle can be attached. The bark cloth paper produced through the beating

(1) Hunter, 1957, p. 45.

(2) Kennedy, 1934, pp. 237-240.

process has to be finished by pressing with a stone tool shaped like an iron (Plate VB).⁽¹⁾

Plate VI exhibits samples, provided by Heyerdahl, of the bark cloth paper and the bark beaters of Celebes and Mexico.⁽²⁾ A close look at them indicates that the beaters from these two areas are quite alike, so are the bark-cloth paper products.

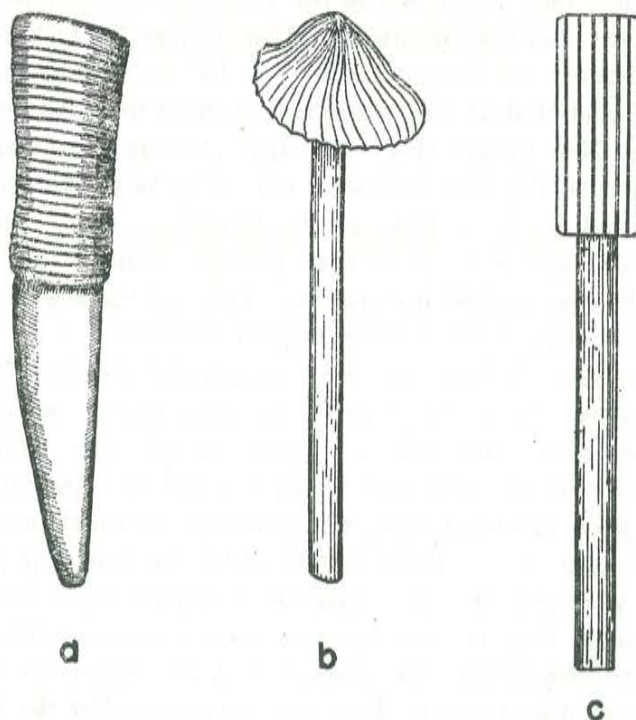


Fig. 16. a. Belgian Congo's (Stanley Falls) bark-paper beater, ivory carved with cross lines, weight 14 oz., length 9 in.
 b. New Britain beater, shells with handle of bamboo, weight 9 oz., length 10 in.
 c. Javanese *delocwang*, paper-beater, grooved brass with handle of bamboo, weight 18 oz., length 11 inches. (After Hunter 1957:32.)

CONCLUSIONS

Based on my study on the bark-cloth culture in recent years⁽³⁾, we have enough reasons to believe that this culture originated in East and South China, then spread westward to Indonesia through Indo-China and the Malay Archipelago, then crossed the Indian Ocean and finally reached Africa by way of Madagascar;⁽⁴⁾ at the same time, it moved eastward into the Pacific Ocean, passing Melanesia and Polynesia, and

(1) Hunter, 1957, p. 28.

(2) Heyerdahl, 1952, p. 133. pl. I.

(3) Ling, 1961, pp. 29-43.

(4) Sieveking, 1956, p. 78.

finally extended to Central and South America. Its main distribution, however, is in the circum-Pacific areas. A study of the various bark cloth beaters and pounders will readily reveal the important characteristics of this culture and the interrelations of its many features. The material for making beaters and pounders consisted chiefly of wood, and then stone. Beside the above mentioned stone beaters, grooved stone beaters have also been reported in New Guinea.⁽¹⁾ In addition, ivory was used to make beaters in Congo, Africa (Fig. 16a); also, hammers with a head made of certain kind of shell and a handle of bamboo were observed on the islands of Melanesia and New Britain (Fig. 16b); again, beaters consisting of a brass head and a bamboo handle (Fig. 16c) were seen in Java.⁽²⁾ As to the shapes and patterns of such beaters and pounders, little can be mentioned about those made of ivory and shells as they were governed to some extent in shape by the original form of the ivory or shells used in their manufacture. Brass pounders were mostly patterned after the stone pounders. Most wooden beaters were made in the same form, with only minor variations. In fact, only stone beaters and pounders possessed individuality and peculiarity. As described before, the stone beaters found in South China, Taiwan and the Philippines include 3 types; namely, the straight-backed type, kitchen-knife type and the type with a separate handle. The third type was the latest and the most developed type, the prototype of which may be represented by the specimen dug out at Hangchow (Plate IV B). Later, it was improved to the form with a narrow face, of which the specimens found in Taiwan (Fig. 6) and the Philippines (Fig. 11) can serve as good examples. Consequently, it was developed into the broad-faced type, identical with the beaters found in Celebes and Mexico. The brass beater-head of Java was patterned after the stone beater-head of Celebes. Besides, there is no difference in function, except in shape, between the round or oval stone pounders of the Malay Peninsula, sometimes with a handle, and the square stone beaters found in other places.

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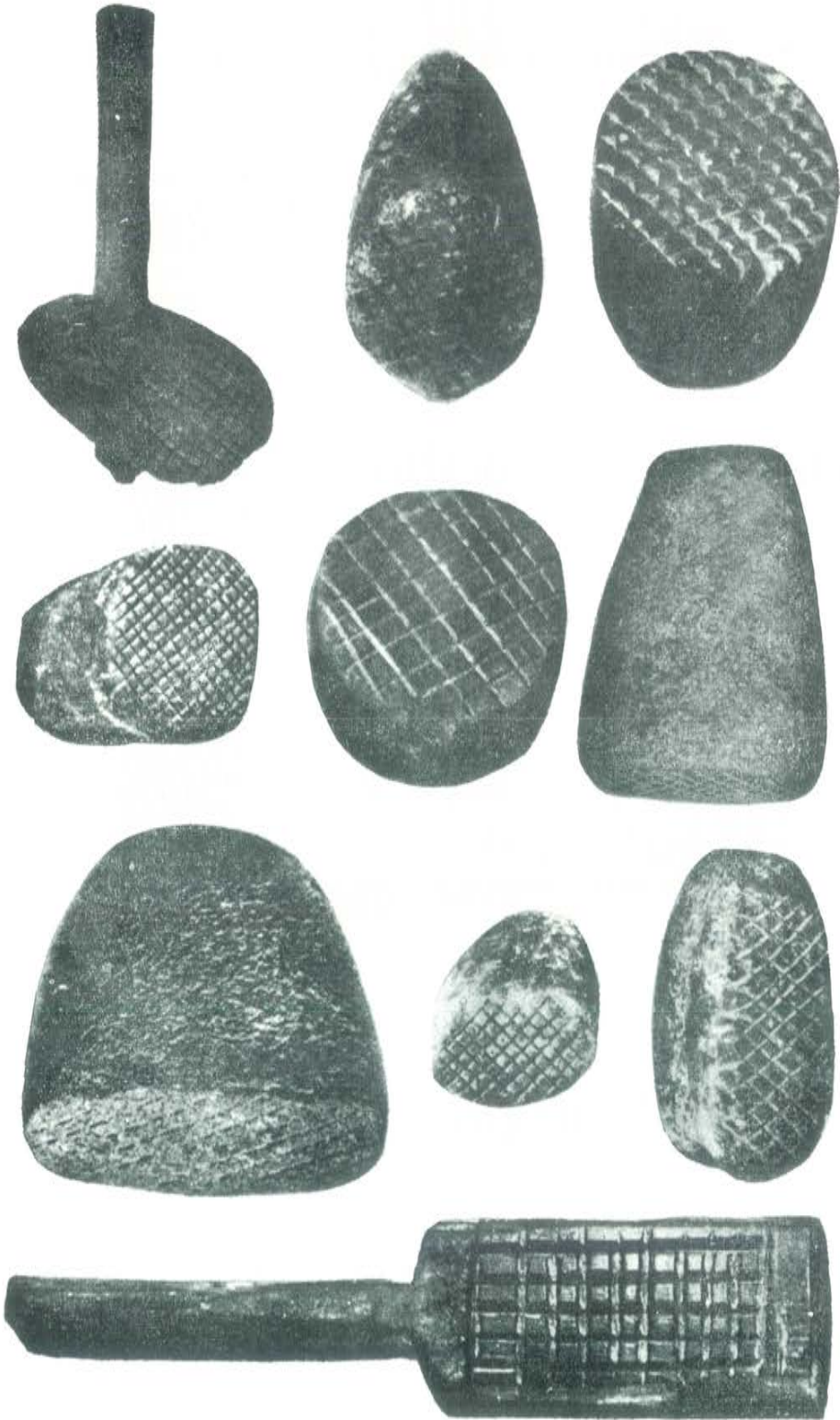
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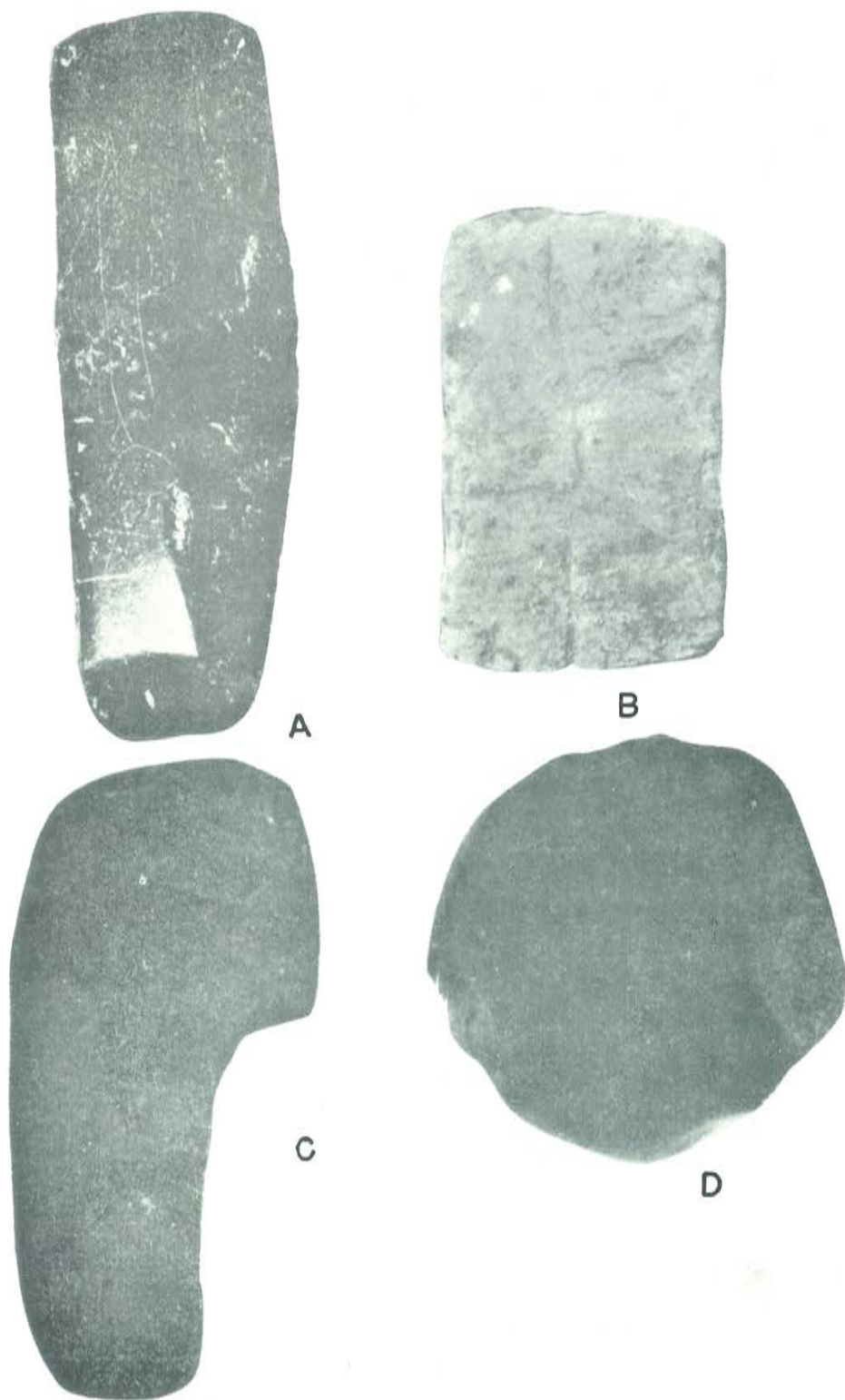
(1) Blackwood, 1950, pp. 27-29.

(2) Hunter, 1957, p. 32, Fig. 25.

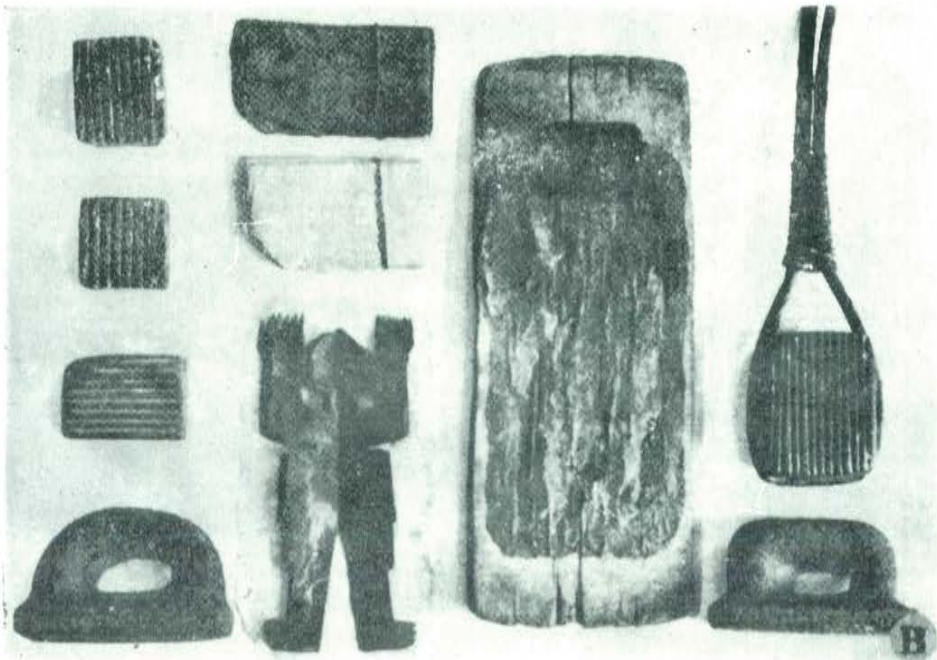
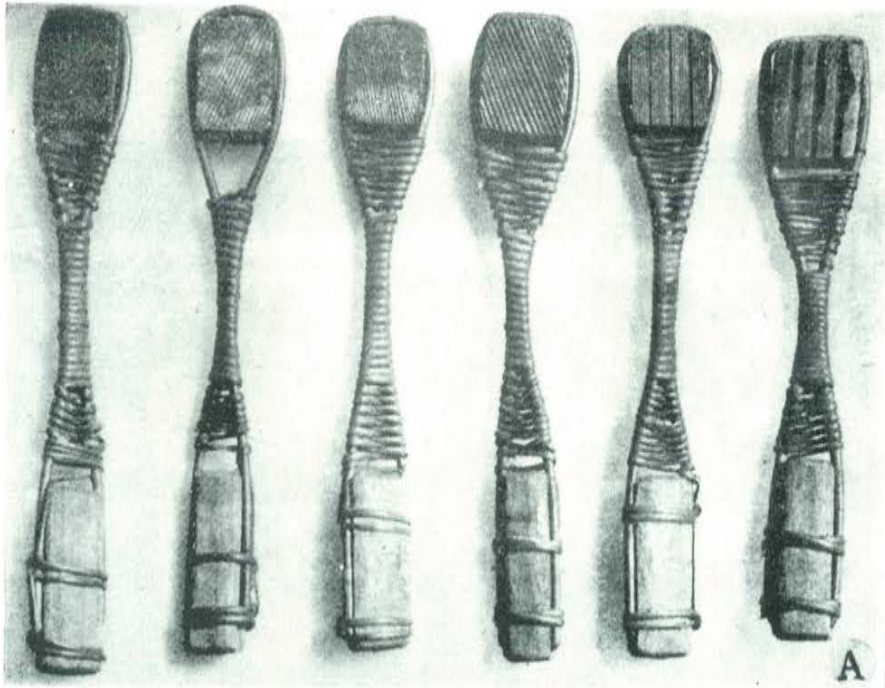
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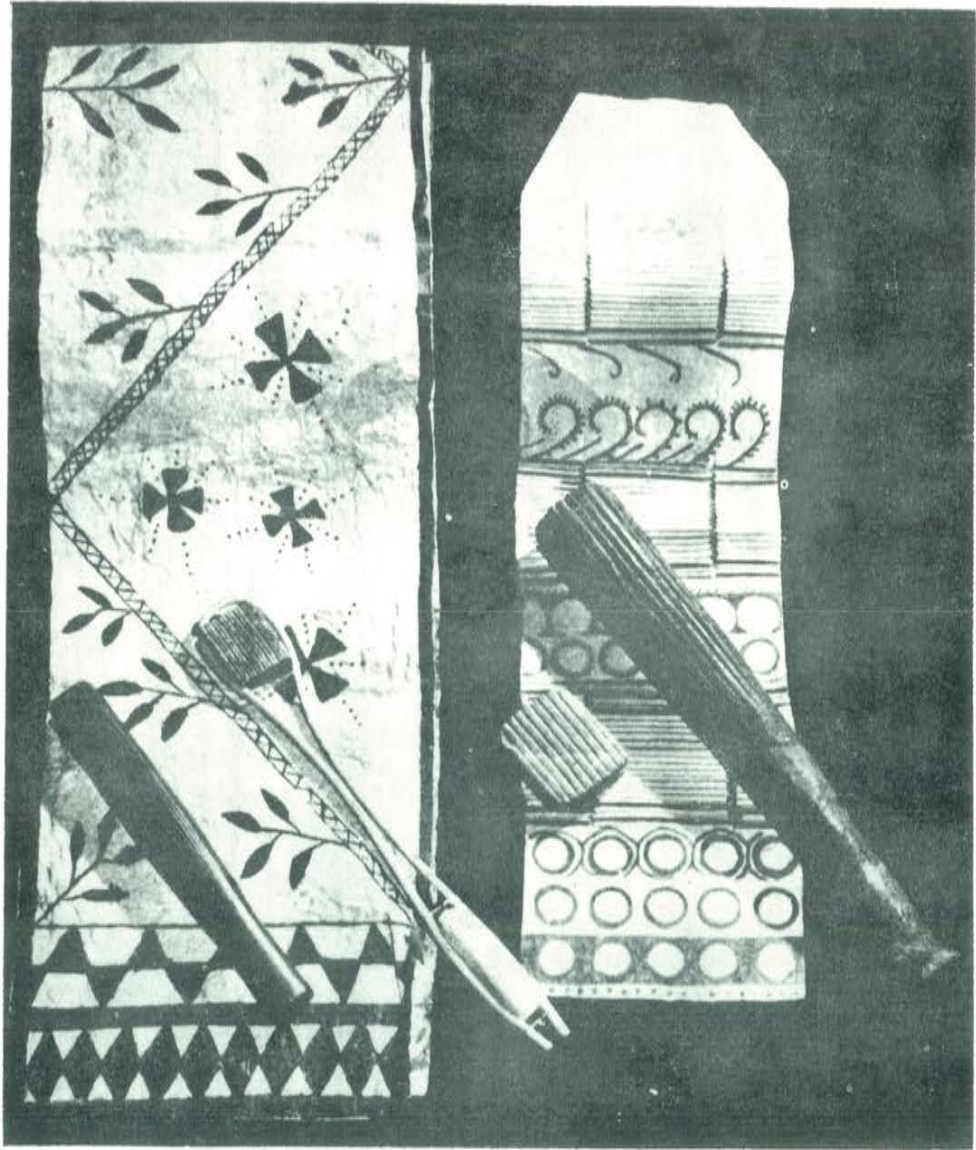
Prehistoric stone bark cloth pounders and modern wooden bat and hammer of the Malay Peninsula.



A & B. Stone beaters unearthed at Ku-tang, Hang-chow.
C: Stone beater unearthed at Kwang-che, Fukien Province.
D. Stone pounder unearthed at So-chin Village, Nanking.



- A. The bark-beaters of the Celebes, being made of cut stones laced to wooden handles with rattan. (After Hunter, 1957.)
- B. The tools used by the Otomi Indians, Mexico, in making their bark-cloth paper. (After Hunter, 1957.)



Bark cloth and bark beaters from Csebes and Mexico. (After Heyerdahl, 1952.)

八 臺灣與環太平洋的樹皮布文化

凌 曼 立

- 一、前言
- 二、有關臺灣古文獻上的樹皮布
- 三、在考古學和語言學上的臺灣樹皮布
- 四、花蓮馬太鞍社阿美族樹皮布的製造
- 五、環太平洋的 *tapa* 文化
- 六、比較與結語

一、前 言

民國四十七年夏，筆者在中央研究院民族學研究所，利用暑假做短期工作，參加該所花蓮縣光復鄉馬太鞍社阿美族的實地考察，任臨時調查員，分擔調查衣服、飾物、紡織、編織等項。筆者在詢問衣服的原料時，發現報導人，馬太鞍社的大頭目年近八十的何有柯 (Unak Tabon) 在他少年時，尙見到過做樹皮布，他還能記憶清楚一切做布的方法和過程。當時問了一個大概情形，歸來將此事報告凌教授，他聽了異常興奮，並說這一發見甚為重要，因為樹皮布文化是環太平洋區的古文化特質之一，亦即是中國古代的榻布 *tapa* 和幪布 *kapa*，且與中國發明造紙術有直接的關係。日本學者在臺灣從事於民族學實地調查工作，將近五十年，在他們的報告和論文中，似未見有關於樹皮布文化記錄，所以在1946年，鹿野忠雄氏尙有臺灣是否曾有 *tapa* 文化一文發表疑問。這一種現已消失的文化，幸有老人尙存，還能做復原和記錄的工作。凌教授竭力鼓勵我作進一步詳細的研究。在民國四十八年二月和八月兩次赴馬太鞍社作補充調查時，多從事此項工作。

本文除將馬太鞍社，做樹皮布的方法，自取樹皮開始，直至以布製成衣服，整個復原工作的過程及一切有關的技術，詳細記錄報告外，並研究古文獻中有關臺灣樹皮布的記載，考古學上史前遺物，土著族語彙中有關 *tapa* 的土語，再進而略述環太平

洋各地的 *tapa* 文化，以作比較研究的資料，最後以比較研究所得，來說明臺灣的 *tapa* 在太平洋區和古代中國大陸的 *tapa* 文化中的地位及關係而暫作一結論。

在此筆者應申謝的，本文承凌純聲教授指導，鮑克蘭教授提供德法文的參考材料，劉斌雄先生，王崧興同學協助搜集資料，李亦園文崇一兩先生審閱文稿。

二、臺灣有關古文獻上的樹皮布

中國古代文獻上對臺灣的著錄，最早的要算到第三世紀，沈瑩的臨海水土志，其中有關樹皮布的記載有太平御覽卷七八〇序東夷條所引云：

夷州在臨海東南，去郡二千里，土地無霜雪，草木不死。四面是山，衆山夷所居。……能作細布，亦作斑文布，刻畫其內，有文章以爲飾好也。

根據凌純聲教授所著古代閩越人與臺灣土著族一文的考證三國時孫權在黃龍二年（公元二三〇）所征伐的夷州，即今之臺灣。沈瑩著的臨海水土志成書的年代，約於公元二六四到二八〇年之間，吳主孫皓在位之時⁽¹⁾。該時夷州已出產兩種布，即細布與斑文布，筆者認爲這都是樹皮布。所謂‘細布’即爲本色的樹皮布（說明詳見後文）；至於斑文布的做法，是‘刻畫其內，有文章以爲飾好’，這完全是述說有文飾樹皮布的製法，即是在樹皮布上刻木而印或繪畫花紋，作爲裝飾之意。現在東南亞，太平洋，南北美洲等地都保存有這種技術⁽²⁾。如圖版捌之2，即爲夏威夷所產刻繪花紋的樹皮布。臨海水土志的作者，用刻畫二字，可以說明斑文布是用樹皮做原料，其上之花紋是由刻畫而成的。

至第七世紀初葉，隋征琉球，當時臺灣所產的樹皮布，頗能引起中土人士的注意，杜寶大業拾遺錄（太平御覽卷八二〇引）曰：

（大業）七年（公元六一一年）十二月朱寬征留仇國還，獲男女口千餘人，並雜物產與中國多不同，緝木皮爲布，甚細白，幅濶三尺二寸，亦有細斑布，幅濶一尺許。唐張鷟朝野僉載亦云：

煬帝令朱寬征留仇（即流虬也）國還，獲男女口千餘人，並雜物產與中國多不

(1) 凌純聲，1950，pp. 1-17.

(2) Hunter，1947，p. 31，Fig. 24.

同，緝木皮爲布甚細白，幅濶二尺二、三寸，亦有細斑布濶一尺許。

又續文獻通考：

隋煬帝令朱寬征服琉球國還，獲男女千餘，並雜物產與中國多不同，緝木皮爲布甚細白，幅濶三尺餘，亦有細斑布，幅濶一尺許。

在第七世紀初的留仇國，經 Schlegel 氏在古琉球國考證一文證明其爲今日的臺灣⁽¹⁾，學者甚少異說。其所謂木皮布甚細白，幅濶三尺二寸。臺灣土著直至現在所用原始式的水平的腰帶織機，所織成的布，幅濶僅尺許。而在古書上所載的木皮布幅濶有三尺二寸，如以直徑尺餘的樹幹，剝取其皮，打製成布，即可得幅濶三尺許的布所謂‘甚細白’即爲本色的樹皮布，亦即臨海水志中，所稱的細布。至大業拾遺錄等書所載的細斑布，或即沈瑩在臨海水志中所記的班文布，則爲有文飾的樹皮布。

自隋唐以後，關於臺灣的文獻，如宋史琉球傳等書均未見有樹皮布的記載，直至第十七世紀初葉，明末清初荷人入據臺灣，後來鄭成功逐荷人而收復臺灣，至清臺灣入於中國版圖，自後漢人移殖日增，有關臺灣的著述漸多，而其中述及樹皮布者：如清康熙三十七年（1698）郁永河的稗海記遊所載：

渡溪後，過大甲社（即崩山）雙寮社，至宛里社，御車番人貌甚陋，胸背雕青爲豹文，男女悉翦髮覆額，作頭陀狀，規樹皮爲冠。

清康熙五十六年（1717）周鐘瑄的諸羅縣志：

半線以上，多揉樹皮爲裙，白如苧，曉行以禦溼露，晞則褪之。古羲皇繪像，腰綴木葉裙，番或有所自耶。

以樹皮爲冠，在中國古代的記載是屢見不鮮，最早的有韓詩外傳：“原憲楮冠黎杖是也”。這種楮冠的樹皮是否經人工打製過尙不能證實，但是在諸羅縣志中已提及揉樹皮爲裙，顯然的這種樹皮是加工的，然後製成裙。且樹皮呈白如苧之色，更可確知該裙係樹之內皮纖維打製的，按作者在阿美族所搜集的樹皮布多係楮樹內皮的纖維經敲打，洗濯，曬乾樹皮即呈白色。樹皮布的更進一步製作的記載有乾隆十六年（1735）傅恒的皇清職貢圖卷三所云：

(1) 馮承鈞譯，1928, pp. 162-167.

鳳山縣山豬毛等社（歸化生番）：男女披髮裸身，或以鹿皮蔽體，富者偶用番錦嗶嘰之屬，能績樹皮爲布。

彰化縣水沙連等社：番人身披鹿皮績樹皮橫聯之，間有著布衫者，番婦掛圓石珠子項，自織布爲衣，善織屢染五色狗毛雜樹皮，陸離如錦。

彰化縣內山生番：番婦針刺兩頤如網巾紋，能績樹皮爲屨。

淡水右武乃等社：生番倚山而居，男女俱裸或取鹿皮緝木葉爲衣。

在十八世紀的中葉，臺灣的土族仍保存在樹皮布的製作和使用方法，較原始的是績樹皮爲布。績，接也。按樹的內皮纖維經過敲打成爲很均勻的纖維時，亦可將另外的一塊樹皮相疊接，成一塊巨幅的樹皮布。在今太平洋的諸羣島中，土人樹皮布製法中有以數塊樹皮布，其邊相績而打成巨幅的衣料。在水沙連社的番人雖在當時已着布衫，仍績樹皮，且精於織狗毛夾樹皮的屨，可說是樹皮用於最精的織物了。又如黃叔瓚台海使槎錄中番境補遺有云：

水沙連雖在山中……其番善織屨毯，染五色狗毛雜樹皮爲之，陸離如錯錦，質亦細密，四方人多欲購之，常不可得。

這種五色的狗毛雜樹皮的織物看似錦，爲外人所爭購之貨物，足以證明其技術的精巧。至乾隆元年（1736）黃叔瓚的台海使槎錄卷五，番俗六考：

北路諸羅番五，內優、壠社、屯社、網社、美壠，衣飾：男女多著鹿皮或織樹皮苧麻爲布極粗厚，日以作褌，夜以覆體。今與漢人交易布匹，男以布尺餘遮前，後體畢露。

清乾隆三十年（1765）朱仕玠的小琉球漫志：

番婦以狗毛，苧麻爲線，織成布，染以茜草，錯雜成文，朱殷奪目；或云係取樹皮細搗擦爲線，以織成布。

樹皮布初係揉樹皮爲布和績樹皮爲布，或混和在狗毛中織成織物，知有紡織之後，亦知利用樹皮的纖維搓成線，再放在織機上而織成布，這種特殊的織布材料至今仍保存的，據任先民先生調查排灣族（尙未發表）紡織，即找到該文化的仍繼續的使用，又卑南族亦存有樹皮織物，在文獻中常常可看到的‘達戈紋’亦是一種混有樹皮纖維的織品。如道光十九年（1839）所修的噶瑪蘭廳誌有云：

衣飾：以樹皮合葛絲，及染過五采狗毛織氈，名曰達戈紋。

又道光十二年所修彰化縣志卷九，服飾條亦云：

達戈紋，出水沙連，如毳紵，雜樹皮成之，色瑩白斜紋間以赭黛，長不竟床，出南路各社者皆灰色，有磚紋或方勝文。

至道光年間番婦所織的達戈紋尚夾雜有樹皮在內，至後來日本學者的調查報告所述的達戈紋即未提及樹皮滲織的達戈紋布，他們雖仍引用達戈紋一名，但這種織物多係麻和茜草，狗毛等物合織成的厚布。

日人鈴木作太郎的臺灣蕃族の研究⁽¹⁾，關於樹皮纖維織成的布，稍有記述，但他指出祇有一種芭蕉布，在雅美族的芭蕉布長達 3 m，寬 20 cm 的腰帶，如日本的大力士所用的腰帶；同時亦說明阿美族的傳說古代用木葉當布，可蔽局部的身體，這很可能是指他們古代的樹皮布而言，樹皮織成的布顯然地較樹皮打成的布時代上是較晚。

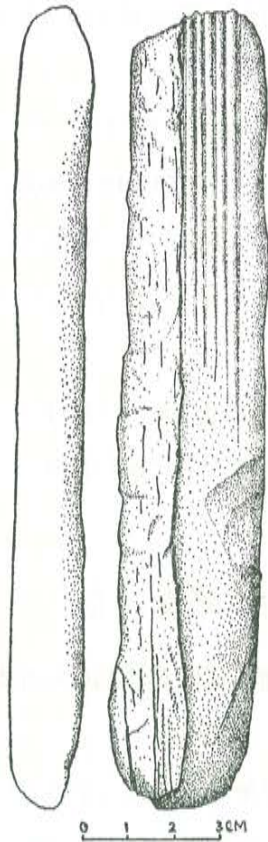
由上所錄，可見臺灣樹皮布文化，早在第三世紀初即見著錄，至十九世紀末葉已有一千七百年的歷史了，這種文獻上的資料，對於研究太平洋區樹皮布文化上彌足珍貴。

三、在考古學和語言學上的臺灣樹皮布

樹皮布的材料多以楮樹為主，這種以植物的纖維，再打製成的毯狀的樹皮布，在使用價值上，遠不及有經緯組織的麻布經用耐穿；故紡織技術發明以後，麻布在初民的生活漸漸地取代了樹皮布的地位，成為他們衣服的主要衣料。植物纖維打製成的樹皮布，較易破損腐爛的，所以在調查時，很困難地在部落中找到這種樹皮布標本。由經濟價值的觀點看，土著民族是在採用麻皮作衣料後，立即放棄了這種原始的衣料。因此，我們欲研究古代樹皮布的文化，只得由樹皮布的打製工具的遺物來着手。一般說，打製樹皮布可用石頭和木頭兩種材料製成的工具，但是木頭亦是易於腐朽的材料，所以我們很難找到木製的樹皮布打棒，唯一可尋得的是考古上遺存的石製樹皮布打棒。

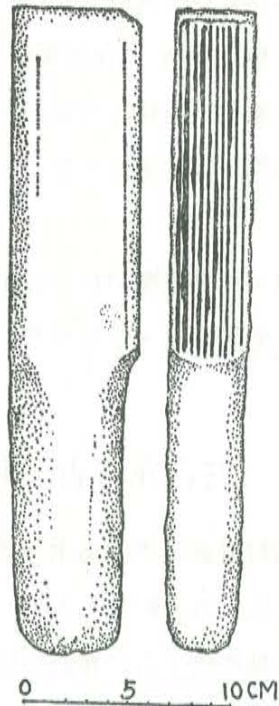
(1) 鈴木作太郎，1932，p. 24.

日本學者宮本延人在他研究基隆附近的石器一文中，報導基隆和蘇澳新城遺址出土的板岩製的打棒，棒上刻有多條平行槽紋。現在臺灣大學考古人類學系標本陳列室的新城遺址陳列櫃中仍陳列這種石棒一塊(插圖一)，唯已破損不完全，打棒全長是17 cm，現寬3 cm(原有寬度不詳)，厚1.5 cm，棒的一面上端有長7 cm的縱列平行槽紋六道。宮本氏發掘初時，誤將樹皮布打棒當作陶工的製印陶紋的印紋工具⁽¹⁾。



插圖一 臺大所藏宜蘭蘇澳新城出土的樹皮布打棒

Fig. 1. Stone bark-cloth beater found in Shin-cheng, Suao, Ilan.



插圖二 基隆出土的樹皮布打棒
(採自宮本延人，石坂莊作)

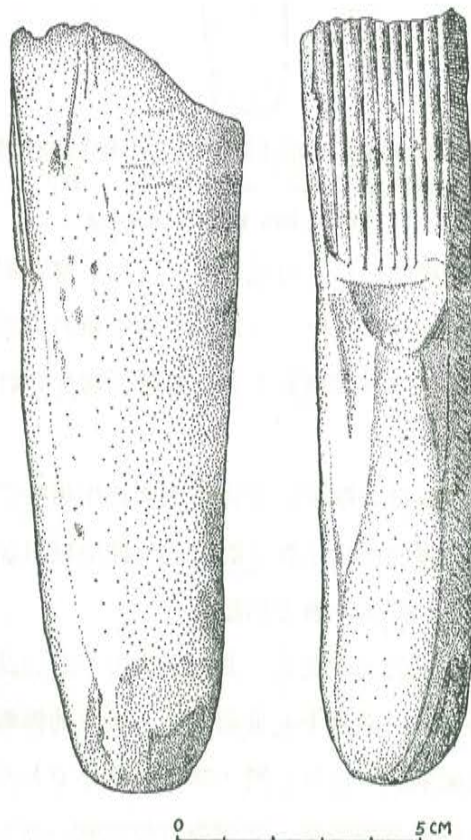
Fig. 2. Stone bark-cloth beater found in Keelung.

另一塊石棒為鹿野忠雄氏轉載於東南亞民族學先史學研究(I)的菲律賓的樹皮布文化——臺灣是否有過樹皮布文化的一文中，該種石器亦出土於基隆，器形完整如(插圖二)石棒全長32 cm，寬4 cm，厚6.4 cm。為一長方形石塊，將其二分之一處，

(1) 宮本延人，1934，pp. 57—62.

磨製成可握的石柄，柄部較為圓滑，上端則在石之較窄的縱面，刻劃數道縱列的槽紋，刻紋的排列很整齊。上述兩件石器鹿野氏認為與菲律賓的石製樹皮布打棒形狀相仿，尤其是與基隆出土的石棒相類似。

筆者在臺大標本室中亦找到一件菲律賓的不完整樹皮布打棒(插圖三)。石棒惜已



插圖三 臺大所藏菲律賓樹皮布石打棒

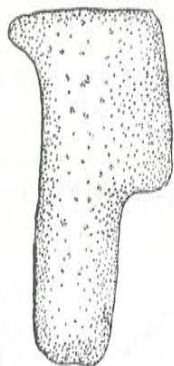
Fig. 3. The bark-cloth beater in Philippines.

折斷且殘缺一段，故僅可測量殘存的長度16cm，寬3cm，厚5cm，棒上刻槽紋共計九條，棒中央的槽紋已磨損不清，但乃可供我們參考比較研究之用。

又鹿野氏在鄒族的故居 Beiyo 遺址中掘得樹皮布石打棒，國分直一氏在高雄縣岡山區小岡山和其他的地區如圓山貝塚，都鑾遺址，皆掘得這種平行槽紋石棒⁽¹⁾。

另一種特殊形狀的石製樹皮布打棒，如鹿野氏記述，他在高雄某一收藏家處所

(1) 鹿野忠雄，1946，p. 320.



插圖四 高雄溪南山出土樹皮布石打棒(採自鹿野忠雄)

Fig. 4. Knife stone bark-cloth beater from the excavation at Chi-nan Hill, Kaohsiung.

見，石器外形似菜刀（插圖四），刀刃並不利，柄部呈橢圓形，質地為凝灰質砂岩製成，全長15cm，刀寬3.5cm；按鹿野氏描述，刀背厚而刀刃不鋒利，刀身前端上角有一突出的尖角，這種奇形石器在菲律賓亦有，是當作樹皮布打棒，故高雄的石菜刀亦可歸入樹皮布石打棒。

上述二種石器，可說是日本學者以考古學上遺物作為論證，證明臺灣古代是有樹皮布的存在。筆者相信樹皮布的文化在臺灣西部分佈地域最廣，可說是北起基隆，南止高雄，皆有石棒的發現，即為一有力的證據。

中國古代有關臺灣風土的文獻記載，其中對樹皮布的記錄已不甚多，而在語言方面，有關樹皮布的資料更少，直到十九世紀以後，西方的傳教士接踵而至；在本世紀初日本民族學和語言學家來臺，對於臺灣土著的語言始有初步記錄和專門的研究，或在民族學調查報告書中記有蕃語記錄，我們尚可尋求到一些有關樹皮布的痕跡存在。

關於臺灣土著語言研究中，有關衣服方面的單字的字彙中，可找到尚保存 *tap* 的語根的單字，例如 *tap* 這種語根常出現在土語的毡子一名詞中。在古代文獻中亦有所謂織的屬毡，但是本文中的樹皮布製法一節，可明顯地看出樹皮纖維能打製成毡子，又在環太平洋區的各島嶼皆有以樹皮打製成的毡，故臺灣土著的毡子一名詞仍保持 *tap* 語根是很合理的，試將各族對毡子的名稱記錄如下：

布農族稱毡

tapalankas⁽¹⁾

(1) Mori, 1910, p. 30.

泰雅族稱毡	<i>taʔpan</i> ⁽¹⁾
鄒族稱毡	<i>taʔpa</i> ⁽²⁾
布農族稱被	<i>tapah</i> ⁽³⁾

樹皮布除了可以整張的打製成毡子外，亦可以製作衣服，在亞熱帶地方的上衣和長衣並非必需的衣服，而最常用的是頭巾，袴子(丁字帶)，腰帶。例如臺灣土著中的卑南族有嚴格的年齡階級，十三歲至十五歲的少年稱 *takovokovan* 級，以 7 至 8 cm 寬的樹皮布頭巾紮頭，這種頭巾係白色的樹皮布製成⁽⁴⁾。在阿美族亦有用樹皮布纏頭的(圖版伍：3)。在衣服方面的，可找得到的名稱：

卑南族稱頭巾	<i>tatuyus</i> ⁽⁴⁾
阿美族稱女用腰帶	<i>tarik</i>
鄒族(四社羣)稱腰帶	<i>tapes</i>
阿美族太巴壠社稱袴	<i>tapir</i>
阿美族馬太鞍社稱袴	<i>tapal</i> ⁽⁵⁾
泰雅族稱袴	<i>tapach-a</i> ⁽⁶⁾

以上所錄皆由土著語集或民族調查報告書中摘出，因為在日據時代民族學家未發現臺灣有樹皮布文化，故對於製樹皮布的工具名稱更未加注意，因而我們不能找到有關樹皮布打棒的記錄，是一件很遺憾的事情。

我們在上面找到與臺灣樹皮布有關的史前遺物和土語中的語根，材料雖不多，但即以此很少的資料，與環太平洋其他地區作一比較，已可顯出他們的類緣。

四、花蓮馬太鞍社阿美族樹皮布的製造

以上兩節我們已收集了很多樹皮布在文獻上的著錄，考古學上的遺物，語言學上的記錄，已經可以找到臺灣在古代確有樹皮布的存在證據。筆者却僥倖的，在調查花

(1) 臺灣總督府，1931, p. 24.

(2) 安倍明義，1930, p. 402

(3) 三宮力，1934, p. 24.

(4) 鹿野忠雄，1946, p. 139.

(5) 鹿野忠雄，1946, pp. 139-140.

(6) Campbell, 1896, p. 188.

蓮縣光復鄉馬太安社阿美族的服飾時，獲知確有這種文化存在，而作進一步深入調查，樹皮布製的方法很簡單，因而適合初民原始生活的環境，但很容易破爛，故在織布技術傳入之後，樹皮布即漸漸的不再被土著採用，在臺灣西部北起基隆南至高雄及東部的宜蘭臺東皆有樹皮布的打棒發現。這種普遍的地下發掘得的石棒亦可知該種文化消失並不太久。而更幸運的是筆者找到了幾位知道做法，而自已穿過樹皮布的阿美族老人，請他們做一次復原工作。

原料 用樹皮打製成布的樹，在馬太安社的阿美族僅用一種樹，即楮樹 (paper mulberry) 學名叫 *Broussonetia papyrifera*，土名叫 *roran*，但在南部馬蘭社阿美族據說還用其他的樹皮可製布，但不如楮樹皮理想和普遍。阿美族人將 *roran* 樹分為三類，以樹皮顏色，樹葉有無極叉，花果的形狀來分別。筆者調查到的三種如下：

第一種 *avono* (圖版壹：1—3) 樹皮最白，葉有極叉似葡萄葉形，開花作頭狀花序，結實如楊梅狀，初為青綠色，至秋初時變紅色乃成熟，可採食之，剝取其皮製作樹皮布，布色白且質地細軟。

第二種 *tunvl* (圖版壹：4—6) 樹皮亦白，僅次於 *avono*，葉亦有極叉，枝有密毛，葉粗糙，開花作長穗形，有如柳花，不會結實，土人多採其長穗形花食之，樹皮亦作布，唯質地次於 *avono*，但仍不失為上好樹皮布材料。

第三種 *ledai* (圖版壹：7—9) 樹皮呈褐色，多斑疤，葉頭極叉呈桃形，不會結實，製成之布粗糙而呈棕褐色，非理想之樹皮布原料。按植物大辭典⁽¹⁾之分類有二，一為楮 *Broussonetia Kasinoki, Sieh*，另一為構 *Broussonetia Papyrifera vent*。構的特徵，落葉喬木，高至二、三十尺，其嫩莖密生剛毛，葉卵形常五裂或三裂，春夏開花雌雄異株，雄花作穗狀，呈橢圓形，雌花集為球形，實熟呈紅色味美。楮的特徵與構相似，唯葉為卵形似桑葉不裂。如此我們可確知構分雌雄，雌者即 *avono*，雄者 *tunvl*，楮即為 *ledai*。按本草綱目，構併入楮，楮者北方人稱之，南人則稱曰構。李時珍的本草綱目卷三十六曰：

按許慎說文云：楮，穀（音構）乃一種也，不必分別，惟辨雌雄耳。雄者皮斑而葉無極叉，三月開花成長穗如柳花狀，不結實，獻年人采花食之，雌者皮白而葉

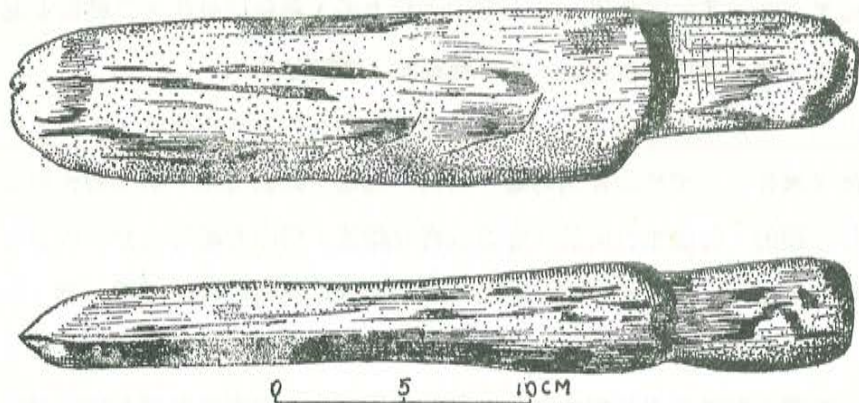
(1) 植物大辭典，1947, p. 1187.

有椶叉亦開碎花結實如楊梅，半熟時水燙去子，密煎作果食，二種樹並易生，葉多澀毛，南人剝皮搗煮造紙，亦緝練爲布，不堅易朽。

上引一段中，將椶與構混爲一談，即以構當作雌的而椶則視爲雄者，主要以樹皮及葉子有無椶叉來分辨，至於結實則爲雌，結穗則爲雄，此仍爲椶，構二樹相同之點，故不能看作分類的一特徵來說明的。實際上椶有雌雄，構亦有雌雄之分。依筆者調查所得，阿美族人僅能分辨出構的雌雄，而椶樹的雌者則與構的雌者混爲一物，因同樣結頭狀實，雄者則另立一名，因其樹皮特別黑而粗，非上好的樹皮布原料。據云椶樹的種類有十餘種，嚴格科學分類與鑑定，須俟植物專家，筆者僅記調查所得材料而已。

工具 臺灣的土著做樹皮布的工具因時代先後而不同，在石器時代所用的工具完全是石製的石刀，石槌，和石楔；但當金石並用時代，土著已能利用鐵刀，並削製木頭的工具，所以這時製樹皮布的工具也就發生變化，除原有的石楔和石槌外，又有鐵刀及木棒等。筆者在馬太鞍調查時的報導人，即該社的老頭目何有柯 (Unak Tabon) 年已近八十歲，他說幼年時曾看過從前石製的用作製樹皮布的刀和槌，並知其用法及做法。因此筆者請他做了兩把石刀，至於石槌，據報導人說並無特製者，但在日人的考古發掘中，出土很多的石打棒，如海岸阿美族所在的都鑿地方，即有出土，但該處的樹皮布文化早已沒有了。現在我們只能假定：馬太鞍社的樹皮布文化製作方面，所用的工具並未達到頂峯；或者報導人所看到的時候，這種文化已在沒落之中，故所見者僅殘存的一部份石刀工具，石槌僅爲河邊鵝卵石，取其一塊將一端或一側面稍爲磨平，即爲石槌，而並未將其一面磨琢成有溝槽的打棒。或已到了金石並用時代，多用木槌充作樹皮布的打棒。下面將收集的石製及木製工具分別描述之。

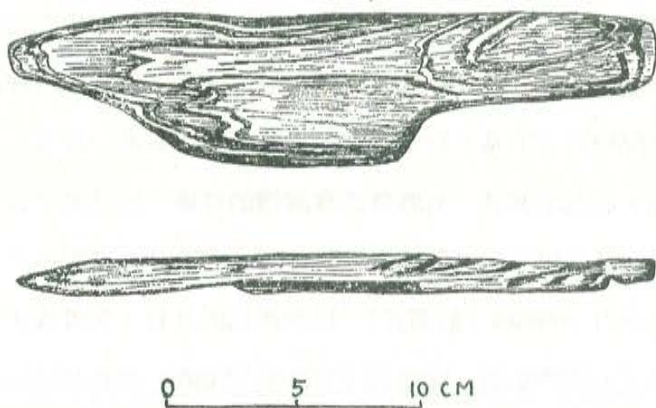
(1) 大型石刀 *hawan* (插圖五) 以灰黑色的頁岩，先打成一長條石片，然後在石頭上磨成刀型，刀身頗厚，有鋒刃，刀全長 34 cm；身長 25 cm，寬 6.5 cm，厚 3—6 cm，柄長 9 cm，粗 2.5 cm，斷面呈圓柱狀。刀背雖較厚，但亦存一條突起而較薄的背脊。刀之頭部及刃部皆磨得薄而利，以便易於割斷樹皮，刀鋒刃砍鈍時，即可在砥石上再磨鋒利。這種刀身的巨大而又沈重的目的，是砍樹皮時可比較省力地將韌性很強的樹皮纖維砍斷。



插圖五 大型石刀打棒

Fig. 5. Big stone knife beater.

(2) 小型石片刀 *boot* (插圖六) 亦用灰黑色的頁岩石剝打成的石片刀，土名稱 *boot*，全長26cm，身長16cm，最寬6cm，厚1cm；柄長10cm，最寬4cm，厚1cm；特徵是刀身特別薄，刀尖窄狹而甚鋒利，主要功用是剝取樹皮，刀頭磨成三角形，已有楔子的雛形了。或者是菜刀式的石刀的另一種形態，將刀頭上的角，移至刀尖上，而其功用仍然是不變的。

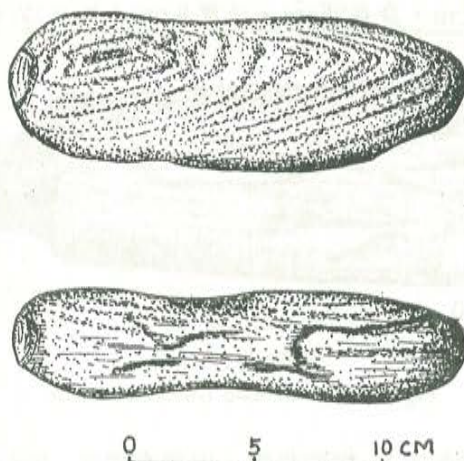


插圖六 小型石片刀

Fig. 6. Small stone blade knife.

(3) 石卵形石槌 *satoktok* (插圖七) 該種石槌的材料多取自於河岸邊石卵，其形狀多呈扁形的鵝卵石，先將石的兩端磨平，使其變成一個小小的平面，亦有在石

之側緣，磨製成一塊打樹皮用的平面。石槌之長度18cm，寬6cm，厚4cm。通常以重量適當，拿動方便，敲打樹皮時不致過重打斷纖維的原則下選取卵石，磨成石槌。

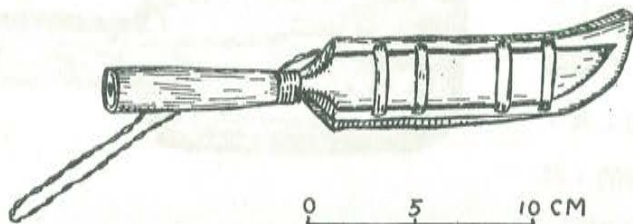


插圖七 石卵形石槌

Fig. 7. Stone bark-cloth pounder.

上述三種為石器時代的工具。到有金屬刀以後，多用刀砍伐木質很堅厚，沉重的檜木等木料代替石槌，我們稱之為製樹皮布的木棒。另有一種修整而光滑的木棒，其頭部特別方正，與編器用的木槌相同，我們亦可假定編籃用的木槌是由樹皮布的打棒演變來的。現代打製樹皮布所用的工具種類，分述如下：

(4) 番刀(插圖八) 一般割剝樹皮的番刀土名*boot*，長約28cm，寬3.5cm，刀雙鋒利無比，形似匕首，輕巧方便，割裂剝取樹皮時，須利用番刀鋒利的頭部工作。

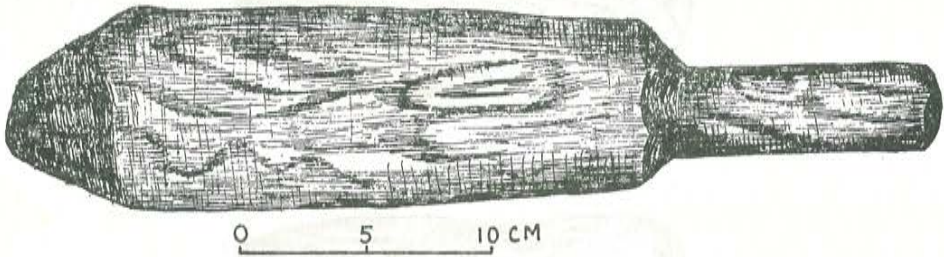


插圖八 番刀

Fig. 8. Native knife

(5) 木楔 樹皮剝取下來時，多不用番刀，先取一堅硬木塊將其兩側削成一尖利鋒刃，將其插入樹的皮質層和木質層之間，然後輕敲木楔，使樹內皮毫無損傷地剝下來。木楔長，寬，厚度是由取皮者隨意而定，用完後立即棄之。

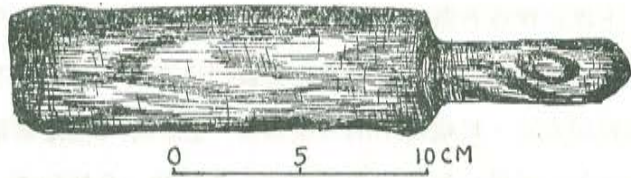
(6) 大木打棒(插圖九) 土名 *saptedas*，砍取木質堅硬的樹木例如九芎樹等一塊，用番刀將其削成有柄的圓柱形打棒，打棒之頭部削得比較尖而圓，柄部亦較細以便握執，打棒全長37cm，身長25cm，最寬8 cm；柄長12cm，柄寬4 cm。



插圖九 大木打棒

Fig. 9. Big wooden bark-cloth beater

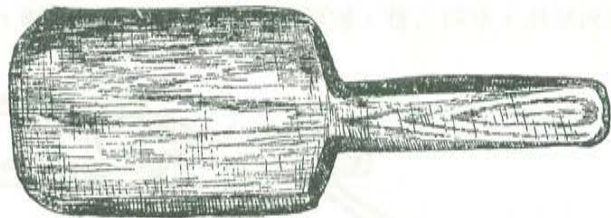
(7) 圓木打棒(插圖十) 製作很粗，用硬木削成一圓柱形的棒身，柄部細圓，棒全長 25cm；身長 15 cm，寬 5 cm；柄長 10 cm，寬 3 cm，這棒多用來敲打樹的表皮，使樹的外皮層與木質層易於分開，然後用手撕去表皮，留下內部較光滑的纖維可敲打成樹皮布。



插圖十 圓木打棒

Fig. 10. Round wooden bark-cloth beater

(8) 方木打棒(插圖十一) 棒身呈方形而厚度較薄，打棒一面是平面，他面呈弧形，該器係編籐器時所用的工具，但亦用於打樹皮布的，器形一定，表面削磨光滑，全長 24cm，厚 4 cm；身長12 cm，寬 8 cm；柄長 12cm，寬 4 cm。



插圖十一 方木打棒

Fig. 11. Square wooden bark-cloth beater

製法 樹皮布的製作

過程是以分工合作的方式完成，例如入深山砍剝樹皮多係青年男子的工作，樹皮剝下後，捆成一捲送至家中，以後的製布工作多歸於老人的事。因為剝皮是一種很費力而難的工作，老年人的體力已經不能勝任取皮的工作，反之敲打樹皮布的技術，須有耐性，技巧和時間，老人們已不能再上山狩獵時，他們的工作是看守幼兒，門戶，煮飯等雜務，在空餘的時間就製樹皮布及獸類的皮革，這是一種很合理的分工合作方式。樹皮布的製作多係男子的工作，故做成衣服亦是男子自己穿着（圖版肆：1, 2），而婦女們多會自己織麻布，故她們穿着全是麻布，在古代的婦女亦着樹皮（圖版肆：3, 4），俟紡織傳入後樹皮布漸漸地不再採用。

在亞熱帶的臺灣，剝取樹皮的時間雖無一定，但仍以夏季為最適當，春季為生長的季節，植物細胞生長始於春而至夏季最盛，充份地吸收水份，這時剝取樹皮最容易，即使堅韌的楮樹亦很易的將其皮層剝下。

（1）取皮 按筆者調查阿美族的樹皮布只用楮樹（paper mulberry）作材料，取樹皮之前，先要選擇適當的樹，理想的樹幹是筆直，樹皮上少結疤痕，在古時先取出大石刀，將樹幹下部繞樹砍裂楮皮一圈（圖版貳：1），樹幹上端亦同樣砍之。如果樹很高，即需作一木梯，先取一根長木桿，桿上依次地砍數個缺口，成為一種最簡單的獨木梯，靠在樹幹之上，人爬上去用石刀繞樹割裂樹皮一圈，然後在兩個割裂樹皮圈之間破一直線，（圖版貳：2），再用小的石刀自割裂的直線中插入樹皮層與木質層之間，用刀頭漸漸地挑使皮與木分開，須注意不損傷樹的內皮層，然後由樹上部漸向下端撕剝下樹皮，剝皮工作的難易視季節而異，春夏時剝取很易，秋冬天寒一棵樹高300cm的楮樹，粗60cm，所需剝皮時間約要一日之久。現代取楮皮多用番刀將整棵樹砍倒，用木車拖運回去，在家屋前寬廣的平地上慢慢剝皮（圖版貳：3, 4），先用刀將樹皮縱列破開，挑開裂縫處的皮與木，再用木楔子插入皮與木之間，用木棒輕擊木楔，使木楔漸漸深入使皮與木分開來，而不致使內皮部損壞，樹皮可做成樹皮布，而木幹亦可有其他利用的價值。如在深山中剝取樹皮後，該樹雖未砍伐但亦因運輸營養的皮層剝去而枯死的。

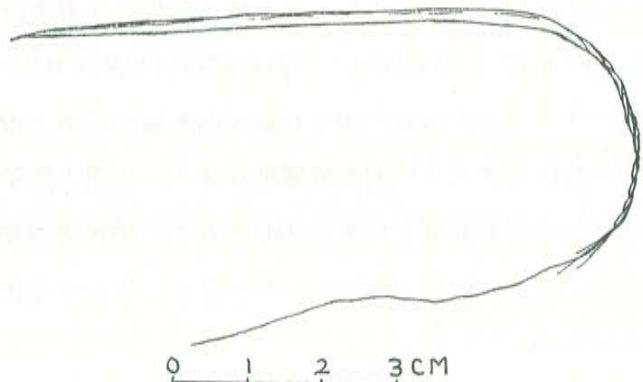
（2）打製 剝下的樹皮應在其未變乾之前着手製成布，因樹皮如變乾後纖維即不易打鬆。古老的方法，是先將樹皮放在一根光滑，粗大的木幹上，打製者蹲在一

側，手執小木棒，敲打樹皮的外表皮，使其皮起毛成球狀，然後用手撕去最外層的皮，留下樹的內皮層再打製成樹皮布。現代的打製方法則不用棒敲擊表皮，可以直接用刀將樹的外表皮剝去(圖版叁：1)，剝皮土語 *mipolats*。再將樹的內皮置於一平滑的木塊上長約40cm；寬20cm；厚15cm；用木棒敲打(圖版叁：2, 3)。

打樹皮的方法是有一定的，初步是橫打，使縱列的纖維左右相混雜，再縱擊。如開始即縱打，可能很快地使樹皮裂開；在打樹皮時必須輕快的敲打，使樹皮的纖維變得鬆軟，打製得好的樹皮布可柔軟如毛毯。這時打擊的樹皮只有一面，另外一面可以看出反面打擊的樹皮是否完好，如有的地方打得不夠時，可由未打的一面看出，再重覆敲擊之，直至滿意為止。

(3) 洗布 打製手續完成後，將其摺成一方塊，上綁壓大石頭一塊，然後把綁有石頭的布，一起浸放在河水中，約須半小時的時間，即自水中取出，時間不可過久，否則樹皮纖維會散開來的，浸水的樹皮布中仍含有樹汁，故洗時先用脚踏布之一端，另一端捲繞成一卷，用手掌輕輕地搓揉，(圖版叁：4)，或用脚慢踩(圖版叁：5)，再將樹皮布浸在水中洗去殘留的樹漿，如此作法前後共計三次，樹皮即可自水中拿出來，輕輕地絞乾水份，再平鋪於草地上，或矮小的灌木叢上曬乾，現代的方法是晾於竹竿上曬乾，(圖版叁：6) 當樹皮布曬至半乾，可時常用手去搓揉布之較硬的部份。或者布置於草地上，足踏在布一端，如洗布方式相同，用手搓揉或將布捲成卷稍使力揉之，俟布完全曬乾時，即變得很柔軟。

製成的樹皮布土名 *ualoiroray*。製做樹皮布時，如粗心將樹皮纖維打裂，則可在樹皮布曬乾後用線縫的方法補救。其法用青竹篾削成一長8cm的竹針(插圖十二)，針頭削得很尖而細，尾部較粗，在針尾約3cm的長度的地方，破裂為二然後將預備好搓成的香蕉絲



插圖十二 竹針

Fig. 12. Bamboo needle

的線，撚接在針尾分叉的竹針兩條竹篾上，撚接須很緊，用這種針線，在樹皮布的裂縫中穿綴縫合。

衣類 樹皮布做的衣服，種類與普通的麻布衣服相同，一棵直徑 10 cm 的樹幹剝下的樹皮寬約 30 cm 以上，即可作無袖長衣的材料，通常樹的直徑 10 cm，樹幹長 150 cm 的樹皮兩塊，可以縫合成一件童裝衣服。成年的長外衣，需樹皮長 180 cm 才行。有的楮樹主幹很粗，直徑約 20—23 cm，其樹皮打製成的整張布，多數當作臥被或墊褥。如樹皮布過份的細長，製成的布多作背帶或頭巾。

據報導人說，樹皮布的製作，是在麻布衣服未使用之前，當時衣服並無特別的裁剪方法，唯縫衣的工具則已俱備，如竹針，或柚子樹上的尖刺，皆可當作針用，線則多是用香蕉絲搓成的。

民族學研究所中現有的樹皮布標本，是民國四十八年秋天，在花蓮阿美族馬太鞍社，請見過樹皮布的老人製作的，當時因氣候轉寒，故製成的樹皮布衣服僅四件較為完好，其他的多有裂縫，用麻線縫合，同時因為楮樹皮可以造紙，一度曾為政府大量收購，山胞多入山大量砍伐，現在已很少能找到較高大的楮樹，所以標本中的衣服尚可製成原大，而被褥的標本，是須用大張的樹皮製成，這已經是不可能的事。筆者在敘述標本時，常以樹皮布材料的不同來說明，某種樹皮適合做衣服或做被褥，而不能顧及標本的尺寸是否合適的條件。

樹皮布標本描述：

(1) 頭巾 *sokin* (圖版伍：3) 標本有三件係三種不同楮樹製成。

用楮樹 *avono* 的樹皮打製成，頭巾全長 76 cm，寬 17~24 cm，因為製法不佳，故布已有裂縫。

用楮樹 *tunvl* 的樹皮所製，頭巾布色較黑。這種樹皮製成的樹皮布成品，皆非上等的布類。頭巾長 75 cm，寬 21 cm。

以楮樹 *ledai* 的樹皮作成的樹皮布，顏色潔白，該標本系頭巾，唯其長度不夠僅有 54 cm，寬 20 cm。

(2) 無袖外衣 *fudoi* (圖版伍：2) 衣全長 75 cm，寬 50 cm，衣服裁剪方法是用兩塊樹皮布縫合成的，樹皮長 150 cm，寬 25 cm，布之縱端對摺，縫製 75 cm，以為衣服背部，衣之兩腋亦將其縫合，製成無袖，無領對襟的長外衣。標本的衣服材料

係色黑且硬的樹皮布製成，在麻布爲土著採用後，粗硬樹皮布長衣，不再是日常服裝，僅在入深山狩獵及工作時才穿的。較短的樹皮布可製成短的無袖外衣。

(3) 套袖 *don* (圖版伍：1) 袖長140cm，寬14cm。使用楮皮布料長140 cm，寬30 cm一塊，先橫摺成一筒狀，對褶的縫用竹針穿線縫合其兩端各約40cm，筒之中間一段，不要縫合，穿套袖時兩臂由中間開口處伸入袖筒，中間的一段橫於背部。套袖穿好，再穿無袖長衣，即成爲正式的冬天工作衣服。

(4) 長裙 *hatau* (圖版陸：2) 裙長 78 cm，寬 56 cm；裙帶長 120cm，寬 3 cm。這種裙的裁製法頗爲罕見，用三塊樹皮布拼縫而成，中間一塊最長最寬，長 78 cm，寬 36cm，另兩塊布長 60cm，寬10cm，分別拼縫在中間一塊布之兩側，裙之下緣必須三塊布一樣長短，裙之上下緣，用竹針穿引麻線將布用密針法縫，以防樹皮布的纖維分散開來，裙的中間一塊布的上緣，包切有一條樹皮布帶長120cm，寬 3cm，爲穿裙之用。裙的穿法是將裙穿在身之左側，一半在身前方，一半在身之後方，裙上布帶自左腋下拉出，前後兩根相繫於右肩之上。大的長裙可將身體全包住，小長裙只能遮住一半身體，用另一條腰裙，由腰之右方向左繫之，遮住露出的身體部份。

(5) 腰裙 *hatau* (圖版陸：1) 裙長45cm，裙寬 60cm，腰帶長 116cm，寬 6 cm，標本係以一整塊的樹皮布，下緣用麻線縫裙邊，裙腰上縫一條腰帶 116 cm；寬 6 cm，腰裙和長裙兩件衣服普通是合成一套服裝。

(6) 前遮 *kapal* (圖版伍：4) 古代男子在炎熱的季節多裸體，僅著前遮，遮蔽下體，標本全長38 cm，寬28 cm，下緣以竹針引線縫邊，使樹皮布纖維不易散開破裂，前遮布上緣釘一條腰帶，帶全長約120cm，寬 5cm，使用時腰帶兩端相繫於臀之後上方。即與所謂的丁字帶功用相仿。

(7) 被服 *kavon* (圖版陸：3) 可分兩種：大被土名 *kavon*，採取巨大的樹皮，打製成的樹皮布，本標本係用楮樹 *ledai* 之皮打製成，被長160 cm，寬66 cm，樹皮布的顏色呈現褐色，其長寬度適合一成年人使用。

小被土名稱 *kavon no wawa* 意小孩的被，取樹 *avono* 之皮製成的布，標本全長76cm，寬55 cm，樹皮布呈乳白色且質地較軟，被四周用線縫好，被之大小適合一孩童使用，唯成年人捲曲而眠亦可使用小被的，並無一定的限制。

(8) 墊褥 *sikal* 有家庭用與會所用的墊褥兩種：

家庭墊褥係用楮樹皮打製成的，全長 105 cm，寬 60 cm，適合一人捲曲着睡的长度，製作較粗，打裂的縫已用線縫合。

會所墊褥亦名 *sikal*，標本製作很粗厚，顏色呈褐色而且質地很硬，全長 78 cm，寬 23~25 cm，該會所墊褥的長寬都不够大。按報導人說，冬日的夜晚，居於會所的青年男子，各人自己帶一條樹皮布墊褥，可以防冷風自籐條地縫中吹到身上受寒，另一作用可免籐條硬背。

(9) 背帶 *savet* 如砍取的樹皮細而長時，不適合作衣服，被褥等時，即當作背負嬰兒使用的背帶，長 128 cm，寬 22 cm。標本計有兩條，背負嬰兒方法有二：其一為將嬰兒揹在背上用背帶綁之，另一方法將嬰兒側掛於胸前。

(10) 未製成的樹皮布，土名 *voloi*。製作該標本時，時季不適於取皮，故雖取得很粗的楮樹，但樹的表皮與木質層，緊緊的貼在一起，不易撕下，故花費很大的精力才剝下皮來，全長 158 cm，寬 80 cm，在製作的過程中，用樹皮布的木棒打製時，樹皮纖維的韌性很弱，一經敲打纖維立即紛紛散開，故不能作布，僅保留這一張特別寬的樹皮當作標本。

五、環太平洋的 tapa 文化

樹皮布文化的地理分佈甚廣，而以環太平洋為其主要地區，且自東南亞向西，經過馬達加斯加島而達非洲東部甚至遠及西非⁽¹⁾。我們要明瞭臺灣的樹皮布文化在太平洋區的地位及與其他地區的關係，故在此略述太平洋區各地樹皮布文化，藉作比較研究之資。

現將環太平洋地域，暫分為東南亞，大洋洲，中南美，東北亞，中國五個地區來敘述，其中的中國一區，凌純聲教授已有另文論及，本文不再贅述。

(一) 東南亞區

本區又可分為中南半島與印尼羣島兩個副區來敘述：

中南半島 現在半島東部越南的安南山脈的 Moi 族⁽²⁾，寮國北部的 Lamet⁽³⁾

(1) Sieveking, 1939, p. 78.

(2) Colani, 1933, Plate 4 (2), Plate 6 (4); Maitre, 1909, p. 99.

(3) Izikowitz, 1951, pp. 61, 111, 180.

及泰國北部 Akha ⁽¹⁾，由 Sieveking 氏根據 Colani 氏說，他們還造樹皮布，但只用作被服或墊褥，已不用做衣料。

至於在半島南部的馬來半島的原始民族如 Semang (Negrito tribes)，Sakai (Dravido-Australian tribes)，和 Jakun (Aboriginal Malayan tribes) 多造樹皮布，做工作日所穿的衣服，其原料雖與波利尼西亞的 *tapa* 相同，但做法普通很粗，不如前者的工細。多數是取麵包樹 *Artocarpus* 皮為原料，用圓的或有齒的棒槌打成布，如布飾以花紋，每一家族有其相似的主要文飾。至於各族造布方法，可說是大同小異。例如霹靂的 Semang，他們又用 *Antiaris* 樹皮造布。砍取樹幹，依其所需要的長度分成數段，用刀括去外皮，用木棒打其內皮，直槌至內皮與樹幹能夠鬆開自木幹脫落。將內皮浸入溪流中，經一月之久，沖洗其毒汁，取出再用棒面刻有槽痕的木棒敲打，如此製成布面有細紋的樹皮布(圖版柒：1)。

霹靂的 Sakai 人要做樹皮布，先在長成的麵包菓樹上割劃其皮，所劃皮之大小，依做衣服所需材料而定，普通長約三至四公尺，寬六十至八十公分。劃定之後，即槌打樹幹，直至樹皮鬆開，脫落離開幹木。再放在一木砧上用木槌敲打成布，有時並飾以黃色花紋。

至於 Jakun 族中的 Blandas 人製樹皮布方法與 Sakai 人相同，但所用木槌上刻有橫槽或長槽。樹皮布多數沒有飾紋，祇有用麵包樹的皮做成的布，是被樹汁染成深紅色。

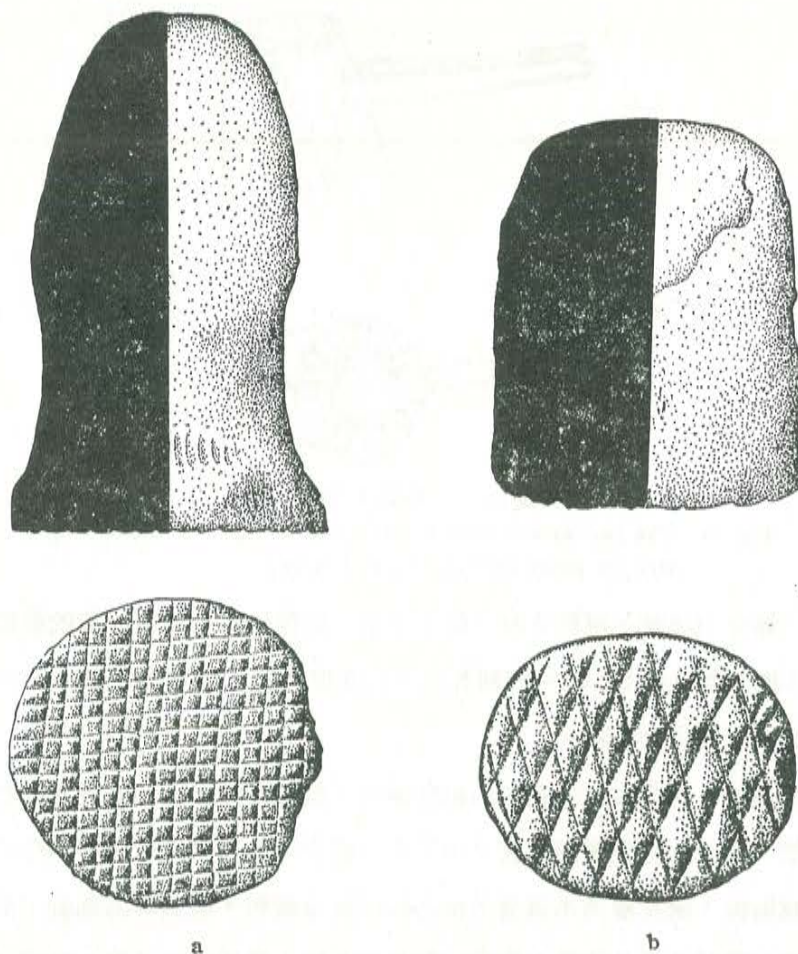
又在馬來半島，所發現史前的槌打樹皮布的石槌，形制甚為特別，如插圖十三所示，這種石槌長約 90~125 mm，槌面直徑 60~80mm。距面稍高有一圈槽痕，可能是裝藤柄之處⁽²⁾。據 Evans 氏說，在蘇門答臘西方的 Mentawai 島有這種形狀的木槌，在槌身穿孔裝一木柄⁽³⁾。在日本造紙槌樹皮用的木槌，亦有近似這一形制的，如插圖十四所示⁽⁴⁾。

(1) Bernatrik, 1947, Vol. 2, p. 418.

(2) Sieveking, 1956, pp. 78-83.

(3) Evans, 1930, Pl. 2.

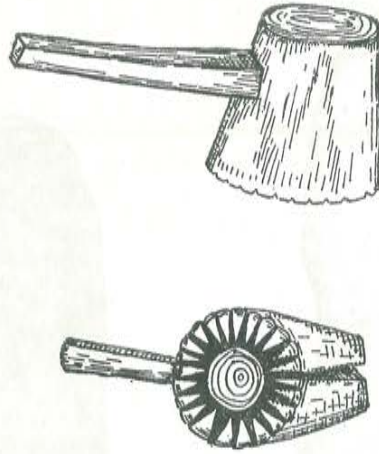
(4) Hunter, 1947, Fig. 107.



插圖十三 馬來半島植樹皮布的史前石槌

- Fig. 13. a. Stone bark cloth beater from the excavation at Gua Cha, Kelantan.
 b. A stone bark cloth pounder found in the Sungai Galas near Gua Musang, Kelantan. (After Sieveking.)

在中南半島西端阿薩姆 (Assam) 的卡羅山地 (Garo Hills) 的 Matchi 和 Chisak 兩族，至今尙能做樹皮布。這種樹材叫做 *simplak*，而樹皮則稱 *amphak*。最常用的樹叫 *phakram* (Leo)，其他有 *thewek*, *phrap* (無花果)，*chram* (釋迦果)。做樹皮布的工具具有兩件，小刀 *dao*，木棒 *phanil* 以木質很強韌的木材，削成圓柱形木棒，



插圖十四 日本植樹皮製紙的木槌

Fig. 14. The two wooden mallets were used in Japan in the beating of bark for paper making. (After Hunter.)

長約18吋，棒身 10.5吋，徑約 2 吋，餘下爲柄，直徑約爲 1 吋多。棒的前端留有 2 吋是光滑的木頭，然後在 5.5 吋一節刻有三十二圈螺旋紋，槽深的斷面呈三角稜形，木棒把手地方又削成尖的圓柄。

樹皮的選取，首先選擇較高大而粗的樹幹，剝取長約 8 呎的樹皮，先在樹上下兩端割劃兩圈，再依一豎條割開樹皮，用手剝取樹皮；如皮層與木層不易分開時，可先用木棒敲擊樹幹，使皮層與木質層的細胞組織變得較鬆，就很容易地剝下樹皮來。然後置於陽光下曬二至三日使乾。樹皮一般長約 8 呎，寬 18 吋至 2 呎。打樹皮之前先得將皮青剝去，剩下棕色的纖維內皮，置於一段較長木幹上，打製者即蹲在這木砧一側，用木棒敲打。如插圖十五所示其身旁置一盛水的木盆，以便樹皮過乾時稍洒一點水，以防打破樹皮布，樹皮打得很薄時將其重疊四摺，稍後再疊成八摺再打，同時敲布之正反兩面。即將樹皮布捲成一束，用一脚踏牢布端，雙手拉伸樹皮布；又將布緣不齊之處用刀切除。這時將樹皮布曬乾，即可使用，成



插圖十五 阿薩姆土著打製樹皮布的方法
Fig. 15. Garo beating bark into cloth with phanil. (After Walker.)

布長5.5~6呎，寬3呎。數塊這種布用線縫綴成一塊6呎見方，六、七層厚的樹皮布毯子，所需樹皮約廿塊以上⁽¹⁾。

印尼羣島 今日印尼羣島的樹皮布文化，即將完全消失，祇有僻遠之區，尙在製造和使用。從前在印尼羣島全部，及菲列賓羣島和馬來半島都是用樹皮布作衣服，現在雖已穿用棉布的若干地區，但在宗教的祭儀中仍須穿樹皮布衣及作喪服。還有許多地方，不用樹皮布作衣料，但用之包物或作寫字的紙用，尤其在爪哇，馬都拉 (Madura)，蘇門答臘和西里伯斯沿海地區多是如此。直至最近爪哇和馬都拉造樹皮布紙的工業很盛，因為有力守舊的風俗仍造這種古紙用以寫字。

造樹皮布的原料，在本區中因地而異，如婆羅洲 (Borneo) 用野麵包果樹 (wild-breadfruit)；尼亞斯 (Nias) 以榕樹；滿他維 (Mentawai) 取麵包果樹皮；爪哇 (Java) 主要用楮樹 (paper mulberry)；西里伯斯 (Celebes) 用野生水槿屬科樹 (wild-hibiscus)；呂宋 (Luzon) 以無花果樹 (figus)。臺灣的阿美族用楮樹 (paper-mulberry)。

樹皮布的名詞在本區不稱 *tapa*，而用馬來語的 *fuya*。至於打樹皮布一詞在本區的西里伯斯稱 *dodo*，在馬來 (Malay) 稱 *tutuq*，在西爪哇的 Sundanese 稱 *tutu*，爪哇人稱 *tutuq*，菲列賓的 Bisaya 族稱 *tuktuk*；Tagalog 族稱 *tuqtuq*，馬達加斯加 (Madagascan) 的馬拉加西的 Malagasy 族稱 *totoka*，在臺灣阿美族稱 *dokdok*，為打的意義。

現舉本區中的西里伯斯島 (Celebes Is.)，的托落加人 (Toradja) 為例來代表說明製造樹皮布的方法，下述資料摘錄自 Kennedy 氏一文⁽²⁾。

取皮 首先砍倒樹幹，剝下樹皮，先刮去表皮與內皮分開，如製褐色或黑色之布，內皮不須煮過，但經敲打，洗潔，壓乾等步驟即成。樹皮布多棕色或棕黑色，因製作時未經煮的過程，又內表原料係楮樹 (paper mulberry) 的皮，製作時不須煮亦能製成白色的布。如沒有楮樹的原料而又須要白色樹皮布時，可採用其他的樹，例如 *umayo* (*Trema ambainensis*) 或者其他纖維較粗的樹皮代替，但須經過煮的手續。煮樹皮方法：刮去表皮的樹皮，置於一盛水的大罐中，水中另加一些灰，罐置於爐上

(1) Walker, 1927, pp. 15-16.

(2) Kennedy, 1934, pp. 229-243.

煮一定時間，將樹皮取出敲打，洗乾淨，壓去水份。

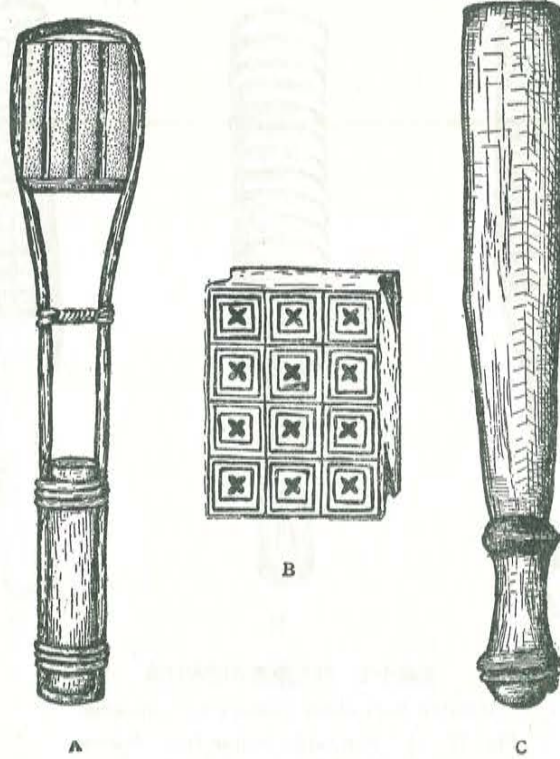
發酵 如內皮原料不是楮樹，而是其他的樹皮，則將濕的樹皮用 *kombuno* (*Livistona rotundifolia*) 的樹葉包好保持濕度，使其發酵一個時期，沒有經煮的樹皮須二至三日，煮過的只要一日，唯有無花果 (*figus*) 樹皮須十至二十日。每塊樹皮普通一公尺至一公尺半長，寬約十公分。發酵時數塊樹皮須排列很整齊，不能有混亂的情形。

敲打 發酵後將樹皮布洗淨，須敲打，施工的地點不能在住人家屋中，怕誤擊中隱形的精靈。Toradja 製樹皮布為婦女的工作，打樹皮的木砧板 (beating-plank) 稱為 *totua*，用一塊木質堅硬巨形長木塊，其下兩端各墊一或兩塊木頭，打樹皮之前用竹葉將木砧磨擦光滑，婦女雙手執木棒，站或蹲在木砧板四周，連續不斷地有規律地敲打樹皮，打擊過份薄的樹皮會破裂，在打樹皮者的身旁，多置一椰殼或葫蘆的盛水器，敲打樹皮時不時的灑水在皮上，以防樹皮乾了難打(圖版柒：2)。

楮樹皮製布時不須發酵的緣故，因其纖維厚重而強韌，須用很重的木槌才能敲打成一塊塊的布片，數塊布片相連接再敲打成毯子，如楮皮少時，另加其他樹的纖維亦能打成毯子，製作圓桶的裙時，裙縫僅將布兩緣相縫合，即可在縫合處另重疊一條樹皮，敲打之即可將其縫隙縫合，製好的樹皮布須塗一種植物油汁 (*bitter*) 以增加布的堅固性。

打棒 托拉加人有石和木製的兩種打棒：石製的形制很特殊，棒頭是用一塊墨綠色的蛇紋石製成，頭的兩面都刻有深的長槽，長槽的數目正面為三條(插圖十六A)反面的多至七或九條，這種多槽棒頭用以打壓樹皮纖維成氈狀，可以稱為打氈法 (*felting*)。有一種棒頭一面直槽多至十一至十五條，反面有二十一條對角斜線；此外尚有刻有十二朵的梅花形(插圖十六B)的棒頭，這多是打製頭巾和長裙 *sarong* 用的。托拉加人打造樹皮布，要用一套六個各種大小紋樣不同的石製打棒(圖版柒：3, 4)工作，至於木質打棒，是黑檀木 (*ebony*) 製一圓棒(插圖十六C)用以打布使之光滑，這種多在住屋內做，用一塊平石為砧。打棒的石礮是西里伯斯的特產，其他印尼羣島，則多用木打棒(插圖十七)。

染布 以打成之布，浸入水中，加幾種樹皮和一些灰，在鍋中煮過，取出塗以一種果汁，再埋入泥沼中若干時，洗淨而曬乾，用手搓軟，即成黑色之布。又以 *ula* 樹



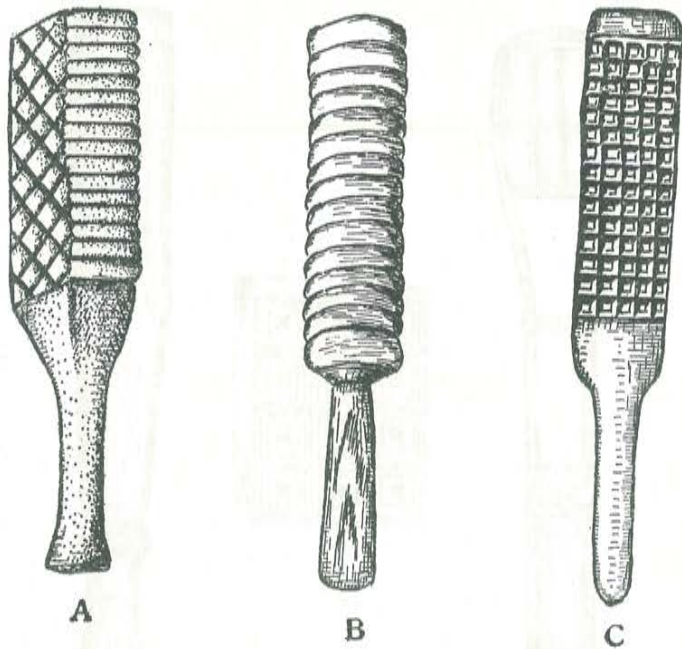
托拉加的樹皮布打棒
 插圖十六 A. 托拉加的石打棒
 B. 托拉加梅花紋的石打棒頭
 C. 托拉加的烏木打棒

Bark-cloth beaters in Toradja

Fig. 16. A. Stone head with rattan holder.
 B. Beater-head.
 C. Round ebony beater. (After Kennedy.)

汁和椰子肉煮成之油，塗在樹皮布上可使其成爲透明。這種布亦可染各種顏色，做女的上衣，及男女的頭巾，算是最好衣料。但不經穿，僅在過節時，穿上兩三次而已。

文飾 在樹皮布上加上文飾有兩種方法：一是繪畫(painting)，另一是印花(stamping)。繪畫多數爲男女巫師之事。文樣多有特殊的意義，如男用頭巾的文飾與其獵得人頭之數有關。畫圖用筆有竹製，用於繪直線；又有葉莖紮成之筆，畫法先以樹脂燒成煙灰，繪成黑色的草圖，然後着上紫紅，黃，紫和綠色，這許多顏料，取自樹木的皮，根，花和葉。印花用的木模，是用黑檀木雕成的模型，着色印上有各種花樣(插圖十八)。



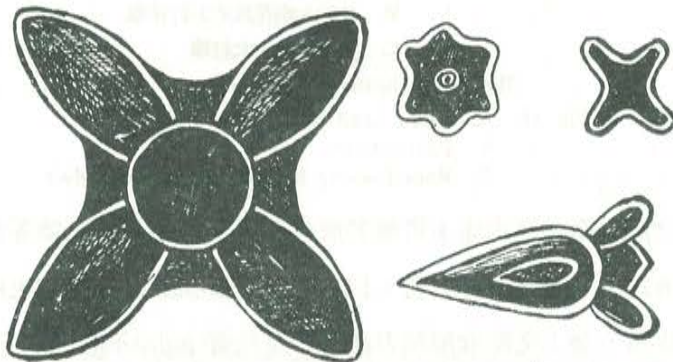
插圖十七 印尼羣島各種木打棒

Wooden bark-cloth Beaters in Indonesia.

Fig. 17. A. Four-side beater from Borneo.

B. Round beater from Sumatra

C. Flat two-side beater from Borneo. (After Kennedy.)



插圖十八 印花木模上的紋樣

Fig. 18. Ebony stamps. (After Kennedy.)

(二) 太平洋區

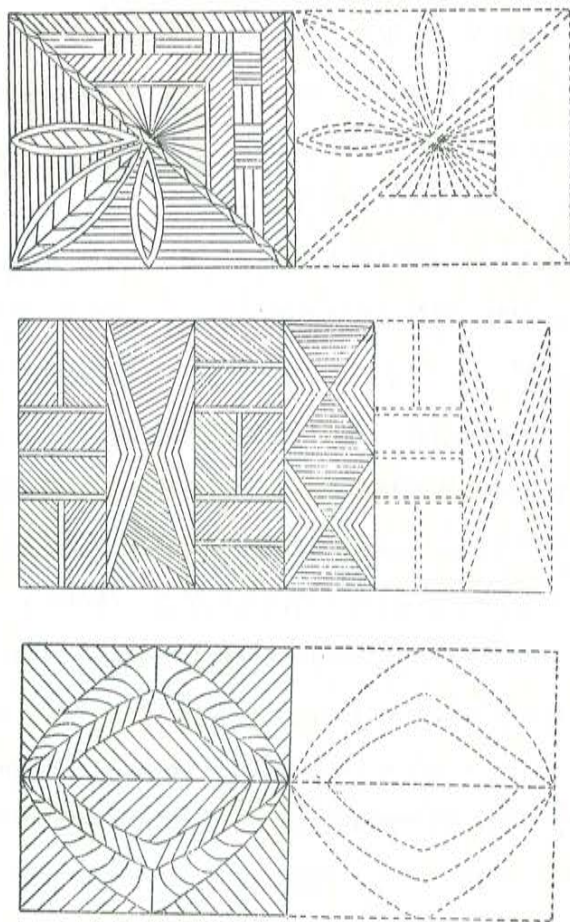
太平洋中散佈着無數的島嶼，在地理學上通稱之海洋洲或大洋洲 (Oceania)，又可再分為三個副區：玻利尼西亞 (Polynesia)，美拉尼西亞 (Melanesia)，和米克羅尼

西亞 (Micronesia)，譯意可以簡稱多島，黑島和小島三個大羣島。茲再分別述之。

玻利尼西亞 在多島羣島中，除在紐西蘭缺少樹皮布原料，而又無織機，故如北美西北岸的印第安人一樣，用指織 (finger-weaving)，代替了樹皮布⁽¹⁾。此外各羣島多製樹皮布 *tapa*，用作衣料。

做最好樹皮布的原料是用楮樹皮，楮樹 (paper mulberry) 學名叫做 *Broussonetia papyrifera*，多數是種植這種樹，專用作製衣的材料。其次等的原料，是用麵包樹，榕樹及其他的樹皮。樹枝或幹長至兩吋直徑時即可砍割，剝取整塊的樹皮，在淡水中浸若干時後，即可放在一段光滑的樹幹上，用一根長的棒槌打製 (圖版捌：1)。棒槌的面上刻有槽痕 (圖版捌：3)，幫助樹皮的纖維易於糾結，續連樹皮是以兩張樹皮布的邊重疊起來槌打而成，用這種方法可以拼槌成任何大小的樹皮布。至樹皮乾後即可使用。楮樹皮製成的布多為白色，堅固而軟，異常溫暖而經穿，但受潮濕則易於破碎。

所有玻利尼西亞人，除馬基薩斯 (Marquesas) 人外，在樹皮布上多加飾文。夏威夷人染以各種顏色，繪以花紋 (圖版捌：2)，或印以竹塊刻成的小模型。社會羣島 (Society Islands) 人取植物的葉或花汁的顏料，繪畫和印花。在 Cook, Samoa, Tonga 和 Fiji 諸羣島以樹皮布鋪在

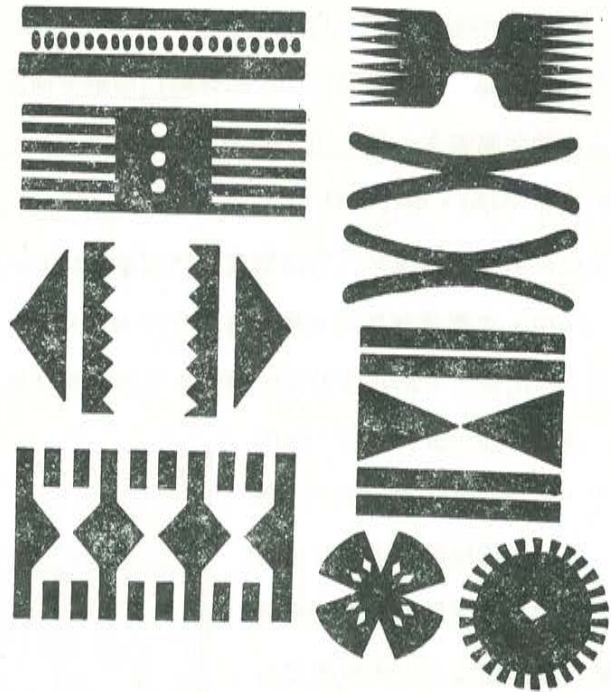


插圖十九 菲基島的陽紋花模板

Fig. 19. Tablet design used to make rubbings on tapa.

(1) Heyerdahl, 1952, p. 134.

一塊雕刻花紋的木板上或在一張露兜樹的葉子上，以葉莖等物縫在葉面使突出成花樣(插圖十九，圖版捌：4)，在雕板與縫花葉子上刷以紅土，則突出部份染色，其餘凹部則否，印在樹皮布上即成紋樣。菲基人 (Fijians) 又有鏤空花模板或名印花板 (Stencils) 如插圖二十所示，或用長兩呎至四呎圓柱木棍上刻等距的圓圈，或繞以纖維搓成的繩，在這刻或繞的圓圈上塗以顏色，以之渲染



插圖二十 菲基的鏤空花模板

Fig. 20. Stencil designs used on tapa. (After Thompson.)

樹皮布上即印成平行的直線。樹皮布上塗以油質可以防雨或某種樹汁可使之光亮⁽¹⁾。

美拉尼西亞 關於美拉尼西亞樹皮布文化，筆者找到的資料很少，祇可簡單的說一說。在梭羅門羣島中的 Ysabel 島，是槌打榕樹皮造 *tapa*，但做工很粗，Florida 亦用樹皮布。Ulawa 和 San Cristoval 兩島直至十九世紀仍在製造。New Hebrides 羣島常取榕樹為原料，所以祇能製造一種粗的樹皮布⁽²⁾。

東部美拉尼西亞和玻利尼西亞的西部，製樹皮布的原料和技術甚為相近。據 Buck 氏說製樹皮布有兩種方法。在玻利尼西亞的中，東（除去復活日島），北三部多用打氈法 (felting)，至於在西部的 Samoa 和 Tonga 島打好的薄樹皮布，用幾張布黏起使之加厚，謂之黏疊 (pasting) 法⁽³⁾。後法又據 Kennedy 氏說，不見於印度尼西亞，這方法無疑的是西部玻利尼西亞或美拉尼西亞的發明⁽⁴⁾。如在 Fiji 羣島與 Tonga

(1) Linton, 1926, pp. 51-52.

(2) Codrington, 1891, pp. 320-321.

(3) Buck, 1944, p. 70.

(4) Kennedy, 1934, p. 231.

羣島之間的南 Lau 島就有菲基法和通加法。所謂通加法即用一種樹名 Yambia 的葉汁爲膠，黏接或黏疊打成的小塊樹皮布而成大的一塊，有時長約75公尺，寬4公尺，作爲貢品或紀念物（圖版玖：1）或用於喪事（圖版玖：2）⁽¹⁾。

米克羅尼西亞 根據 Linton 所說，Micronesia 羣島低的珊瑚島的土壤不適於生長楮樹及麵包樹，因原料缺乏，所以少用樹皮布⁽²⁾，又 Haddon 說祇在 Ponap 島有樹皮布⁽³⁾。但據 Buck 氏的調查在 Caroline 羣島的 Kapingamarangi 島⁽⁴⁾，老年人尙能做樹皮布。該島做樹皮布與玻利尼西亞的方法有若干差異：1. 打棒上無細的溝槽，砧子用一段圓的樹幹；2. 用一塊樹皮打成的布已够做一件衣服，不需要拼接幾塊樹皮；3. 在玻島剝下整塊樹皮後再去表皮，本島先去表皮再剝下內皮；4. 洗布和去水此島用一棒和木椿，在玻島不用此法；5. 據報告人說不知染色。

本島日常已不用樹皮布，但老年人尙記得清楚做法。Buck 請一位老人名叫 Mairiku 做樹皮布，以表演其製法所經過程。土人先砍取二根麵包樹，以其中之一根，根端直徑四吋，長八呎六吋者做樹皮布。

第一步刮去樹幹的表皮層，Mairiku 用一小鐵斧工作，他已不知用鐵器之前用何種工具，因爲在他少年時已用鐵器。麵包樹幹放在椰子葉編的蓆上，他坐在樹幹後面剝刮外表皮自根端開始。先刮一呎長一段，周圍剝刮，再開始另一段，繼續的刮直至綠色的外皮去淨，祇剩下白色的內皮。

第二步從木幹剝下內皮。用小鐵斧的一角，深切內皮入木，在木幹上切成一直線。用斧撬開樹皮的全長兩邊，再將根端的內皮周圍撬離木幹，又將木幹撬開的一面向下即可抓住離木內皮的下端，漸漸地向上撕開內皮，完全脫離木幹而成一整張內皮（圖版玖：3）。內皮全長8呎6吋，根端寬10.75吋，上端寬7.5吋，厚約2mm。放在珊瑚礫石上曬乾。

棒與砧 打槌樹皮的木棒和砧，在從前可能有精製的工具，他們或已遺忘了，而又無遺物可仿造，兩個臨時的速成的打棒，原料大約爲椰樹木，15吋長，一端形似一圓的截頭，3.5吋寬；2.5吋厚；另一端爲圓柄，柄徑1.5吋，（插圖二十一B）。此棒另有

(1) Thompson, 1940, p. 198.

(2) Linton, 1926, p. 51.

(3) Haddon, 1927, p. 17.

(4) Buck, 1950, pp. 142-148.

他用之處，如擊椰子殼，棒面沒有像玻利尼西安的樹皮打棒的長槽。

小的打棒用露兜樹木 (Pandanus) 製成，全長 10.5 吋棒頭寬 2.7 吋，厚 1.4 吋。柄末形成一吋見方。棒木只用打擊的一面 (插圖二十一 A)。打棒叫 *tuki*，但非專名，可稱一切棒或杵之總名。

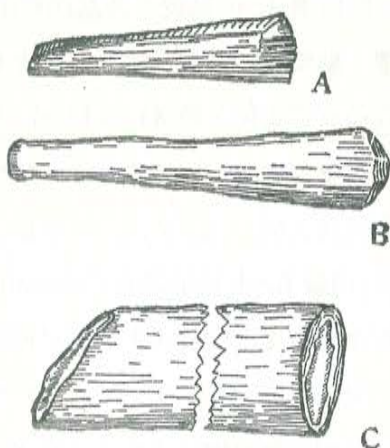
木砧亦用一段堅固露兜樹幹做成，圓而光周圍為 8.5 吋。此砧一端成斜坡，無特殊的目的，砧的一面之長 19 吋，另面則為 23 吋 (插圖二十一 C)。砧無專名，叫做露兜樹木 *tikara* 而已。

打製 在打製之前，先將曬乾的樹皮，浸入礁中泡一小時。取出後放在木砧上，以大打棒的狹面輕叩約八吋的一段，自右至左，與皮成直角先打，橫過預定的一段。樹的內皮在木幹上剝下來時根端原闊 10.5 吋；經過曬乾而浸漬之後，已縮至 8 吋寬。經過第一次打扣以後，再開始打第二次。

第二次用小的打棒，很小心的打，特別注意打厚的部份，全張樹皮打完，則寬的根端自 10.5 吋伸展至 18 吋。然後將布摺成三、四層厚，有時用木棒打 (圖版玖：4)，即為最後一次的打製，目的是使樹皮更薄，換言之即增加布的寬度自 18 吋展寬至 23 吋。

洗布 以打成的布，拿到附近海邊的鹽水塘內搓洗。如用手洗衣服，在搓洗後即在塘邊，右手拿布的一端，左手勦擠去水，再用兩手將布絞乾，乃以一光滑的木幹，根端徑粗 1.5 吋埋入地下，上端結牢在一樹枝上，以布繞在木幹上，布的兩端摺疊而成一環。用兩手絞布，先從近木幹起，漸漸向外，最後布絞剩一小圈時塞進一小木棒，將棒旋轉擠出水來，再向相反方面又絞一次排出餘水。

最後將布鬆開，二端分離，兩手各持一端，在木幹上來回的拉，使布摩擦成光滑，然後將布取下，以溼布向左右展開，去其褶痕與縐紋，尤須注意修邊，甚至撕出一些邊緣的纖維作為流蘇，布上的縐褶都弄平直以後，即鋪開由日光曬乾。除去經過



插圖二十一 A, B. 米克羅尼西亞的樹皮布打棒
C. 米克羅尼西亞的打樹皮布的木砧
Fig. 21. A, B. Bark-cloth beater, Kapingamarangi, Micronesia.
C. Wooden anvil, Kapingamarangi, Micronesia. (After Buck.)

摩光和拉展外，又因為幾次絞乾，布的幅度自原有的23吋寬縮減至20吋。成布之後即可製衣或裙(圖版拾：1)。

(三) 中 南 美 洲

北美洲的印第安人利用樹皮纖維，作為編織的原料，他的地理分佈甚廣⁽¹⁾。例如北美西北岸，在哥倫比亞河以北的 Chinook, Salish, Nootka, Kwakiutl 更北至 Tlingit 諸族，多知剝取樹皮製作纖維。

樹皮布的原料有兩種：紅柏 (red cedar) 和黃柏 (yellow cedar)。剝樹皮很少是將樹上的皮全剝光，而只是剝一部份留下的樹皮足夠支持樹的生存，使樹幹能重生出被剝的皮；外表皮刮去的內皮携回家，乾後撕分成條，作編織之用。黃色的柏樹皮處理法：將它交替地浸在鹽水和清水中，弄乾後再用鯨魚骨或石棒將樹皮打開成條狀的纖維。又 Kwakiutl 族的製樹皮方法，在七月時刮取柏樹皮，浸在鹽水中十天，取出用鯨魚骨或石槌敲打⁽²⁾。

北美的印第安人，雖亦剝取多種樹皮，用作編織或紡織的原料，編蓆或做衣被，但不用毡氈 (felting) 方法，直接打製樹皮布 *tapa*，所以嚴格的說不在本文研討的範圍之內。現在美洲尚存 *tapa* 文化的祇有中美和南美兩個區域。

中美區 在古代的 Maya 人，以樹皮造布，當作寫字的紙，叫做 *huun*，後來 Aztec 人繼之，造紙且成爲一相當大的工業。Aztec 人稱他所造的樹皮布紙爲 *amatl*。在五十年前的墨西哥南部的 Otomi 印第安人仍在繼續造紙。據 Hunter 在本世紀初，曾親自去調查。現摘錄他的記載：Otomi 人剝取一吋多寬的無花菓樹皮，愈長愈好。刮去樹的外皮，祇用纖維的內表皮爲原料。先以內表浸入盛水的鍋中，以文火煮過。倘使樹皮老而硬，則須用米漿來煮。墨西哥的造紙是女人工作，男人覺得做這種工作有損其尊嚴，而不願做，但剝撕樹皮則男人擔任。煮過以後，樹皮的纖維多少有些鬆開，放在一塊比紙樣較大些的木板上，樹皮條的邊相互略爲搭到，乃以石槌敲打而再用壓石壓平，這種壓石，有的地方代以燒硬的玉蜀黍的軸。樹皮條經過槌打之後，連成一片(圖版拾：2)，已成粗紙連同木板在日光下曬乾，成層的樹皮纖維很容易揭起。

(1) Wissler, 1922, pp. 42-43.

(2) Drucker, 1955, pp. 47-48.

在世界上原始的造紙法，Otomi 印第安人的造 *amatl* 紙，可說是最粗的一種，且其本質就是樹皮布，所謂紙與布，是以其用途而言。⁽¹⁾

南美洲 樹皮布文化在南美洲是特別發達的地區，分佈在亞馬遜河上游支流流域和玻利維亞東部的 Guaporé, Mamoré 和 Beni 諸河沿岸。樹皮布除用做衣服外，尚作蚊帳，面具以及被服。製造樹皮布的原料，主要為無花果樹皮。

至於造樹皮布的技術，已有記錄祇限於少數的幾族。如 Mosekene 人以為 *bibosi* 樹(無花菓樹的一種)及其他樹的厚內皮造布。砍取直徑八吋至十吋粗的大樹枝及所需的長度，用石刀或利牙在樹枝上劃切一條直線，乃火烘樹枝，至樹皮乾後，可以一擊而脫落下來。乃展開樹皮，分開去掉綠色的外皮，括淨餘下白色的內皮，再以有槽的木槌(插圖二十二)槌打使內皮變軟。數張樹皮布可以縫成被單，上衣和蚊帳。

其他各族製法，多數大同小異，如古代的 Mojo 人造布用大塊的 *bibosi* 樹皮，有時皮長 12 呎，寬至 3 呎，放在樹幹的木砧上用刻槽木槌打製。Moré 人選擇各種樹皮造布，可以得到不同顏色的布料做衣。Carajá 人造布的技術似較原始，砍取長約 1.5~2 呎的樹枝，用舊的石斧槌打，再縱線割開樹皮而撕下，以樹皮浸濕，褶疊放在圓木臼中，用石棒槌打。



插圖二十二 南美洲玻利維亞的樹皮布木打棒

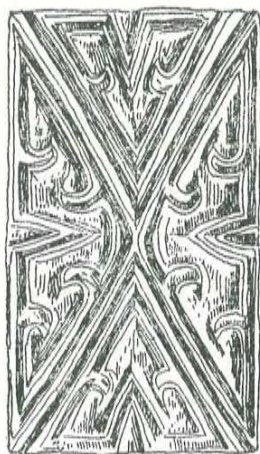
Cubeo 人以白色內皮的樹皮作舞蹈面具，紅色的內皮作裙，錢袋。方法是砍取一定長度的樹幹，敲打內皮，使其變鬆軟與木質層分開而脫出，然後再敲打成樹皮布(圖版拾：4)。Bororo 的婦女的樹皮布用咀嚼方法，使一種 *tibiacea* (*Apeiba cimbalaria*) 樹皮變軟而成布，用以做短裙。

樹皮布在本區是以小塊的布縫成大塊以製衣被，如 Moré 人縫布用木針或骨針。又 Yuracare, Majo, Moré 諸族在樹皮布上以雕花的木板(插圖二十三)印上花紋。Moré 人喜用各種不同顏色的樹皮布條，貼在白底或黑底的布上⁽²⁾。

(1) Hunter, 1957, pp. 45-47.

(2) Métraux, 1949, pp. 67-68.

Fig. 22. Bark-cloth beater, Bolivian. (After Métraux.)



插圖二十三. 南美洲玻利維亞印樹皮布花紋的彫花木板

Fig. 23. Wooden stamp for bark-cloth Yuracare, Bolivia. (After Métraux.)

(四) 東 北 亞 洲

在東北亞洲的樹皮布文化的分佈，現在我們找到的材料，有日本，庫頁島和韓國三地，下文分述之。

日本 在1953年，國分直一氏發表東亞古代的 tapa 文化一文，其中關於日本的樹皮布研究，茲摘譯一段如下：

日本古代的栲布，早就有人懷疑是 *tapa*。三宅米古氏可能從田代安定氏考察太平洋諸島後在人類學雜誌記載土人衣服之衣料使用 *tapa* 一事獲得啓示。*tahu* 與 *tapa* 相似處有四：原料同一，名稱相近，形質用法相似，製法相同。然而 *tahu* 即 *tapa* 之斷定，至今仍留有疑問。三宅氏舉出懷疑 *tahe* 為織物之學者為谷川士清。谷川氏在和訓栞之 *takubusuma* (栲衾)條說：栲衾實為紙衾。但 Stanley C. Ball 氏所舉的 *bed tapa* 或印度尼西亞的 *tapa* 布製的 blanket，是否就是 *takubusuma*，這是有懷疑的必要。

假如 *takubusuma* 是 *tapa* 布的衾(鋪蓋)的話，將如同古事記之歌，使用時會有聲音。三宅氏之後，高橋健自氏論日本原始時代之服飾材料時，亦注意 *tapa* 與 *tahe* 的關係。後藤守一教授說：“栲布是拷布之誤。拷為打之意，栲布為打成之布的意思，因而認為 *tahe* 即 *tapa*，並認為此或日本最古的衣料也說不定”。研究日本文學的折口信夫氏在古代文學的南方要素的講演，亦曾注意 *tahe* 與 *tapa*

的關係。

樹皮布 *tapa* 在南方，大多使用為腰卷，禪（丁字帶）等之陰部遮蔽的衣料；因此可注意日本原始衣料之裳和禪等，雖然關於裳是不清楚，但松岡靜雄氏認為 *tahusaki* 可能來自 *tapa* 一說，是很有興趣的⁽¹⁾。

照上所錄，可見日本學者對於在古代日本樹皮布的有無問題尚是信疑參半。但懷疑者如再能從歷史，地理，考古以及民族學等各方面去探討，日本古代的楮栲布即是樹皮布當可找到可靠證據。那波利貞氏在他的楮布考一文的結論說。

日本的古語習慣將楮栲布稱做 *tahu*，古習慣常將此語相當於漢字的楮布答布，此可能對秦漢人之楮栲布俗稱的 *tahu*，在很早就傳到日本，而漢書的答布，就是楮栲布，也即用楮栲樹皮為料的織物。

國分氏對那波氏認為答布與楮栲布同是織物不能同意，他說：

筆者認為並非織物，而是以槌氈 (felting) 的手續 (process) 製成的樹皮布即 *tapa* 布。

國分氏的結論是正確的。但是我們還要進一步說，日本早在秦漢以前，原來已有 *tapa* 文化而名 *tahu*，楮栲布是採用漢字以後而名之。至於日本至今尚用樹皮纖維來織布，這是由樹皮布文化演進而來的，在環太平洋其他區域，尚多同一的事實。

庫頁 今之庫頁島，據 Schlegel 氏考證為古之扶桑國，他說：

馬(端臨)氏於記述遼東及南滿各民族之後，後越日本海，述日本之北海道，此地中國古稱蝦夷。……蝦夷之後，記述扶桑，扶桑一地，吾人以爲即中國名稱之庫葉，日本名稱之樺太，而歐洲地理學者誤稱爲薩哈連者是也⁽²⁾。

如上 Schlegel 之說，古之扶桑為今之庫頁島，則本島在第五世紀時，中國文獻記載造樹皮布與紙之事。南東夷傳云：

扶桑國者，齊永元元年 (499 A. D.) 其國有沙門慧深來至荊洲，說云：扶桑在大漢國東二萬餘里，地在中國之東，其上多扶桑木，故以爲名，扶桑葉似桐初生如筍，國人食之，實如梨而赤，績其皮爲布以爲衣，亦以爲棉，作板屋，無城郭，

(1) 國分直一，1953, pp. 44-55.

(2) 馮承鈞，1928, p. 5.

有文字，以扶桑皮爲紙。

希勒格氏假定扶桑即楮樹可以造紙和織布，他說：

吾人以爲中國所稱之扶桑，亦即生於中國之楮 (*Broussonetia*)，固中國著作所誌之扶桑樹實，形同楮實，楮實圓而軟，其色深紫，與扶桑樹實同也。

如扶桑國爲今之庫頁島，則造布之樹皮，除楮外尙用榆樹。希勒格氏說：

北海道及樺太島作布之樹皮。蝦夷人名之曰 *ohiyo*，日本人名曰 *nire* 或 *ohnire* 即中國之榆或榔榆。其造布之法，先以樹皮浸入沸水中，然後搗碎，取其纖維，織以爲布。

果如上述，則今之蝦夷人亦如日本人一樣，已不用原始的氈氈法 (felting) 造樹皮布，進而利用樹皮纖維織布矣。

韓國 筆者對於韓國有無樹皮布的問題，手頭沒有材料，又爲時間所限，本文急於繳卷，這一疑問，祇可俟之異日答覆。但由於高麗紙的聞名於世⁽¹⁾，又紙造的地毯⁽²⁾，在天工開物卷中殺青第十三有云：“朝鮮白氈紙不知用何質料。”筆者懷疑此種白氈紙，或由楮皮直接氈成的樹皮紙。

琉球 在琉球羣島有無 *tapa* 文化，至今尙難確言，如國分直一氏所說：

在熱帶圈裏，有純粹繼續 *tapa* 工業的，但大多是 *tapa* 文化與織布文化併行。而且可以說 *tapa* 文化次第消滅。現在雖不很清楚，但野生有楮及桑科植物的琉球地方，不可以不關心他。南方系織布技術的紡織技術，在臺灣原住民族間，曾有它的痕跡。同樣的技術亦見於琉球羣島。在琉球可以說找不出南方系 *tapa* 文化的痕跡⁽³⁾。

筆者認爲現在琉球雖找不出南方系 *tapa* 文化的痕跡，但不能否定它過去也沒有，因爲照琉球的地理環境而言，它的三面：臺灣，中國大陸和日本都有樹皮布文化，當地又野生有楮樹和桑科植物，是應有 *tapa* 文化存在，現在雖未找到，或如多數的米克羅尼西亞羣島一樣，這種文化業已消失了。

(1) Laufer, 1919, p. 563.

(2) Hunter, 1947, pp. 96-97.

(3) 國分直一, 1953, p. 48.

六、比較與結語

上文我們先從文獻，考古，語言和民族學上的材料，敘述臺灣土著的樹皮布，而後略述環太平洋的 *tapa* 文化，現在可以來做一比較，以作本文的結論。茲以 *tapa* 文化叢體中的重要特質名稱，工具，製法，文飾四項來作一簡略的比較研究。

名稱 臺灣土著語彙中，我們找到泰雅族稱毡曰 *tapan*，袴曰 *tapach-a*；布農族稱毡曰 *tapalankas*，被曰 *tapah*；鄒族稱毡曰 *tapa*，四社羣的鄒族稱袴曰 *tapes*；阿美族稱女用腰帶曰 *tarip*，大巴壠社阿美人稱袴曰 *tapir*，馬太安社人稱袴曰 *tapal*⁽¹⁾；卑南族稱頭巾曰 *tatuyus*。以上諸語一看就知是與南島 (Austronesian) 語的 *tapa* 有關，所謂毡，被，腰帶，袴或裙，頭巾等，即是一塊樹皮布，以布之長短濶狹的不同而分別其用途，故可概名之曰 *tapa*。又馬太安社阿美族人稱男用前遮曰 *kapa!* 亦就是一小塊的樹皮布，此語又與古代夏威夷人稱樹皮布曰 *kapa* 相同⁽²⁾。據凌教授的考證⁽³⁾，*tapa* 即史記卷一二九的‘榻布’，漢書卷一一的‘答布’；而 *kapa* 或即後漢書卷一一六的‘幪布’。又日本古代的楮袴布日語叫做 *tahu* 或 *tahe*。所以筆者現暫假定中國榻布或答布和幪布即為南島語中的 *tapa*，及 *kapa*，日語的 *tahu*，亦是源於 *tapa*，未知究竟如何，希望語言學家，能作進一步的研究。

工具 臺灣樹皮布製作的工具有石棒，石槌，木棒，竹針等。石棒上刻有條紋的僅在考古發掘中找到，如鹿野忠雄記錄的在基隆出土完整的樹皮布打棒石，其形製與菲律賓的石棒完全相同，這種石棒上刻有槽紋的工具，幾乎是環太平洋各地都有，馬來半島 *Semang* 人的石棒上除有直條的槽紋外亦有其他的紋樣，如方格紋，菱形紋。石棒最特殊的是西里伯斯托拉加人所用的，打棒的頭部是方塊石頭，正反兩面都刻有直或斜的槽紋，打製樹皮布計有六種條紋粗細不同的石棒，依先後秩序來敲打樹皮之用。石刀型的打棒只有在臺灣及菲律賓兩地發現完全相仿的工具。無槽的石打棒，石槌與木棒的形製非常相像，主要的是用做打去樹表皮之用。木製的打棒在考古學上已

(1) 阿美族古代無袴，此袴或係裙之稱。

(2) Hunter, 1947, p. 29.

(3) 凌純聲，1961, pp. 2-6.

無法可找到，只能利用現存的民族學材料，筆者所收集之樹皮布打棒三件，其中兩件圓形柱狀打棒，製作較粗，形制與米克羅尼西亞的 Kapingamarangi 人的打棒相似，使用的方法亦相同；在阿薩姆的加羅，印尼羣島的婆羅洲，蘇門答臘等地的圓柱木棒形制與臺灣阿美族木棒同，唯棒身刻有螺旋紋，方格紋或菱紋，在 Celebes 的烏木棒則沒有紋樣僅圓柱木棒一根，柄部修製頗精，其功用將樹皮布打光滑。臺灣有一種方形的木棒，棒面並無槽紋，現已作做編器的敲棒使用，唯打樹皮布最後一個階段，就用方木棒稍隆起的光滑背面敲打樹皮，這種工具我們並沒在其他區域見過。凡樹皮布製作較精之區域，敲打木棒上多有槽紋，加速樹皮纖維揉合的作用。針竹最初其用作補縫打破的樹皮布縫之用，再進一步的使用竹針縫綴數塊樹皮布製成衣服，在南美的 Moré 人縫布時所用的是木針或骨針，針的使用改變了初民衣服的形式。

製法 阿美族的樹皮布以楮樹作主要材料，製布者係男子的工作。先找尋幹直而粗，皮面光淨的楮樹剝取其皮，樹皮携回家後，在其未乾時置於一塊木砧上，用石棒敲打樹的表皮使其與內皮分離脫落，表皮去後，再用木棒敲打樹內皮纖維，使其左右相混雜，樹皮變得鬆軟如毛毯，洗去樹皮纖維中的汁，灑乾即成潔白的樹皮布，這種製法與阿薩姆的 Garo 人，米克羅尼西亞的 Kapingamarangi 人的樹皮布製法相似，並沒有像西里伯斯的 Toradja 人製作樹皮布須經煮皮，發酵，染色，繪紋，上油汁等複雜的進一步加工過程，亦無 Samoa 和 Tonga 人的黏疊(pasting)。臺灣，阿薩姆和米克羅尼西亞三地的製法，是可能為最古老的方法，亦可說是樹皮布製法的退步結果。在臺灣古文獻中我們找到的材料，有述及“番婦善織罽毯，染五色狗毛雜樹皮為之，陸離如錦”，又臺灣最古文獻臨海水土志所記‘能作斑紋布，刻畫其內，有文章以為飾好’。由上所述，我們又知道臺灣的樹皮布，曾有其極發達的時候，樹皮布可以染色，繪畫，印紋，且以染五色狗毛雜樹皮纖維打製成陸離如錦的布。阿美族的樹皮布製法簡陋，並非真正證明這是一種文化的衰退現象，也許是他們一直保持原始的製法，而未與臺灣其他西部的進步的樹皮布製法相接觸，而中國文獻所記多係以西部平埔族為主要對象，臺灣的樹皮布製法，可能在同一時代保存了很進步與很保守的兩種方法，而進步的方法又很快地為紡織蔬或棉布取代，較落後而交通不便的東部，這種原始的製法則慢慢地消失去，而筆者及時的趕上抓住了這瞬將消逝的文化。

文飾 本文前面所記花蓮馬太安社阿美人做的樹皮布是最原始的一種，既不染色，亦不繪畫，一無文飾之可言。或此種文化已在消失中，又或報導人所做的復原工作，祇做了個大概，已不得其詳；但領導復原做樹皮布工作的老頭目何有柯 (Unak Tabon) 博聞強記，在阿美人中，是我們所遇到的最有學問之人，且不苟言行，故寧信其真實。且臺灣土著現有的高山族有九種，從前居於平原的平埔番又有十種；雖多屬於南島 (Austronesian) 語系的民族，然各族或因遷來的源地不同，又或移入本島時間的先後，故在文化上呈現大同而有小異。尤其東部與西部之間有高山阻隔，諸族遷到臺灣之後亦少交往，以致東西兩部的文化懸殊。即以樹皮布而言，如前引的在西元第三世紀時沈瑩的臨海水土志所載，夷州 (今之臺灣) 條云：“能作細布亦作斑文布，刻畫其內，有文章以為飾好也。”又第七世紀的杜寶之大業拾遺錄著錄留仇國云：“緝木皮為布，甚細白，幅濶三尺二寸，亦有細斑布，幅濶一尺許”。可見臺灣自第三世紀到七世紀初，所製的細白布和斑文布，多是‘緝木皮為布’。緝，接也，而非織，無疑地用打氈法 (felting) 打製成的樹皮布，而其中‘作斑文布，刻畫其內’，所謂‘刻畫’二字，一般人恐不易了解，但看了上錄太平洋區的現存 *tapa* 文飾，刻畫可包括今之手繪 (painting)，打印 (stamp)，花紋板 (design tablet) 及鏤空板 (stencil) 等印花方法，使樹皮布上‘有文章以為飾好也’。

樹皮布的文飾，中國古代亦有記載，如後漢書卷一一六述武陵蠻的幪布有云：“織績木皮，染以草實，好五色衣服……衣裳斑蘭”。這種名幪布 *kapa* 的樹皮布染色，用草果實，提取其汁作顏料，染衣服成五色，此法在今太平洋區，例如 Celebes 島中 Toradja 完全保存。至於衣裳斑蘭，當亦加上文飾而成。

由上比較的研究，這樹皮布的文化，已很明顯地看出，是一種環太平洋的文化特質之一。它的地理分佈，北自庫頁島、日本、韓國、中國大陸、中南半島，而經印尼羣島、美拉尼西亞、米克羅尼西亞、玻利尼西亞，東抵南美、中美等地都有樹皮布的存在，而臺灣的樹皮布文化，當係該文化圈之一環。並且臺灣的 *tapa* 文化，在一千七百多年前，已見於歷史記載，它的存在無疑地當早於此。所以臺灣樹皮布文化有這悠久歷史，在研究太平洋區 *tapa* 文化上，佔有極其重要的地位。

至於臺灣樹皮布文化的來源問題，因筆者搜到與臺灣鄰近地區的資料，除菲律賓

和大陸沿海外，北方琉球羣島簡直可說沒有，所以現在除臺灣與大陸沿海菲律賓及米克羅尼西亞有關外，尚不敢作進一步的假設，但據中國古文獻所載夷州的刻畫文章而為飾好的精美樹皮布，又現存馬太安社，最原始的製法，至少可說臺灣西、東兩地古今的 *tapa* 文化的來源不同。

最後有關整個太平洋區 *tapa* 文化起源地問題，人類學者多數以為是起源於東南亞的印尼羣島；德國漢學家 Erberhard 氏主張這一文化創自中南半島的泰族⁽¹⁾日人彌津正志氏在 1945 年發表西南太平洋樹皮服的源流一文，又創源於印度之說，挪威的 Heyerdahl 氏則認為環太平洋的 *tapa* 文化源於美洲⁽²⁾。本文所記臺灣的資料，凌教授收集中國大陸古代文獻上材料，在中國古代樹皮布文化與造紙術發明一文中又創太平洋區樹皮布文化起源於中國的新說。

(1) Erberhard. 1942.

(2) Heyerdahl, 1952, p. 96.

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BARK-CLOTH IN TAIWAN AND THE CIRCUM-PACIFIC AREAS

(Abridgement)

MARY MAN-LI LING

I

In the summer of 1958, a field-team consisting of research members of the Institute of Ethnology, Academia Sinica, and several senior students of the Department of Archaeology and Anthropology, National Taiwan University, went investigating the native culture in the Mata'an village, an Ami community in Huan-lian Hsien, under the auspices of the Institute of Ethnology and sponsored by China Council for Asian Studies. The author, being a senior, participated the survey and had been appointed to investigate such subjects as weaving, plaiting, cloths and ornaments. In the course of our inquiry about cloth-making, we found that our informant Unak Tabon, the village head, aged 80, could still remember the methods and all the processes in the making of bark-cloth which had lost its importance among the natives for a long period. During the course of our investigation, we had asked the old chieftain a favor to demonstrate the processes of tapa making. It was done, for the kindness of him, several times and every process was well explained and recorded. In this paper the author wishes to present the data of the bark-cloth making that were collected in the field survey and then to reconstruct this forgotten culture element historically, archaeologically and linguistically.

In the last section, the author also wishes to compare the Formosan native's data with the tapa making culture of other circum-Pacific peoples with an aim to explain the position and relationship of Formosan bark-cloth making among the Pacific areas.

II

The Ami used the bark of paper mulberry or *rorau* (*Broussonetia papyrifera*) as material in the making of bark-cloth. They specified three kinds of *roran*, namely: *avono*, *tunvl*, and *ledai* (Plate I). The author has identified that *avono* and *tunvl* are *Broussonetia papyrifera vent* (male and female) and that *ledai* is *Broussonetia Kosinoki*, *Siek*.

The tools used in making bark-cloth by this native tribe include different kinds of stone and wooden beaters either with round beater-head or square one but without grooves (*saptedas*). The handle is always round and handful (Figs. 9-11). Besides, there are an iron knife called *boot* (Fig. 6), a wooden wedge and a stone pounder

called *satoktok* (Fig. 7).

The bark of *roran* is commonly taken in the summer time when it is easier than in other seasons to take off the bark from the stem. When taking off the bark, two rings are cut with knife on the stem eight feet length apart, these are joined by one vertical cut. The bark is then stripped off with the (Plate II.) knife. The stiff outer part of a single piece of the bark removed is again scraped off with a knife or shaved out with the stone pounder, and every spot of green is carefully removed until the white fibre is completely exposed (Plate III: 1).

Next comes the most important procedure of all: beating. In beating the bast is laid down on a smooth log and beater squats alongside and beats the bast with rapid but balanced strokes. The beatings are firstly parallel to the fibre and afterward vertically. (Plate III: 2) The whole procedure of beating is completed only after the bast becomes smooth and soft.

Then the cloth is soaked for a time in fresh water, and rubbed therein by hands. After the sap is cleared up, the cloth is put under the sun to dry (Plate III: 4, 5, 6). Upon completion of these procedures a piece of pure, soft, white barkcloth is ready.

In the demonstration of bark-cloth making, the Ami villagehead had made nine specimens for us, namely: one head band (Plate V: 3), one upper garment (Plate V: 2), one "separate sleeves" (Plate V: 1), one apron (Plate V: 4), two skirts (Plate VI: 1, 2), one blanket for bedding (Plate VI: 3), one belt and one uncut cloth. All of them are now exhibited in the museum of the Institute of Ethnology, Academia Sinica.

III

The bark-cloth of Formosan natives was mentioned in some ancient Chinese documents even as early as in the mid-3rd century. In Shen Yeng's (沈瑩) *Lin-hai-shui-tu chih* (臨海水土志) we find a passage as follows:

I-chow (夷州) is situated two thousands *lis* to the Southeast of Lin-hai. There is no snow in winter and the grass is ever-green. In the mountains live some aborigines who can make fine cloth and also mottled cloth or *pan-wen-pu* (斑紋布) designed with paintings or stamping as a kind of decoration.

According to Prof. Shun-sheng Ling, I-chow was the ancient name for Formosa (Ling, 1951), and, in my opinion, the so-called *pan-wen-pu* was a kind of bark-cloth made by these aborigines.

Later, at the beginning of the 7th century, the bark-cloth of Formosan natives was recorded in Chinese official documents. In *Liu-ch'iu-chuan* (琉球傳), a chapter of *Sui-shu* (隋書) reads the following:

In December, in the 7th years of Ta-yeh (大業), General Chu Kuan (朱寬) returned from a successful conquest in Liu-ch'iu (留仇), with over one thousand captives and native products that were different from ours. Among

these products were clothes fine made from white bark and measured 3.2 ch'ih in width. There were also fine mottled cloth measured 1 ch'ih in width.

The name Liu-ch'iu (留仇) has been identified by Schlegel (1928) as the ancient name for Formosa. Similar accounts of bark-cloth quoted above can also be seen in other documents, such as *Chau-yeh-ch'ian-tsai* (朝野僉載) and *Hsu-wen-hsien-tung-kau* (續文獻通考).

In recent centuries there are also several documents on the bark-cloth made by Formosan native tribes evidently the so-called Pinpu tribes. In Yü Ung-ho's (郁永和) *Pei-hai-ch'i-yu* (裨海紀遊)....dated 1688:

The natives....tatoöed, cut the hair covering their forehead and put the bark cap on head.

In *Chiu-lo-hsien-tze* (諸羅縣志)....dated 1717:

The natives lives in north of *Pan-hsian* (半線), twist the bark to make their skirts which colored white and can be used to protect the morning cool.

In 1736, there existed one of the most detail records about Formosan natives, i. e., Huang Shu-tsing's (黃叔璥) *Tai-hai-she-ch'a-lu* (臺海使槎錄) where bark-cloth making is mentioned several times, and where a special kind of bark-cloth called *ta-ko-wen* (達戈紋) and made of bark and animal hair is also noted, Huang says:

The Sui-sa-lian (水沙連) natives, who live in the mountainous area, weave the finest blanket. They use dyed dog hair mixed with strips of bark as weaving material. This kind of blanket is very colorful and fine.

Ta-ko-wen a product of Sui-sa-lian (水沙連) natives, is made of mixed bark and looks like white linen cloth with reddish black designs.

So far there are data concerning bark-cloth of Formosan aborigines recorded in ancient Chinese documents during the 3rd century, A.D. to the beginning of the 19th century. But we do not have any modern ethnographical records about the process of bark-cloth making other than the material the author collected at Mata'an.

IV

From archaeological evidences, the author presumes that bark-cloth has been prevalent among prehistorical settlers throughout the whole island. Several stone bark-cloth beaters have been unearthed and reported from various prehistorical sites spreading from north to south. A typical beater is made of a long narrow stone about 30 cm. in length, 5 cm. in width and 5-6 cm. in thickness. The lower part is usually ground to form a handle and, in the upper part, one face is engraved in parallel with several shallow grooves for the purpose of beating (Fig. 1-2). There is another type of beater found in Kaohsiung (高雄) in the shape of a Chinese knife (Fig. 4). This kind of stone implement has been reported in the Philippines and is still used as bark-cloth beater.

It is also interesting to note that among various dialects of Formosan aboriginal language 'tap' is frequently used as a prefix to some cloth terms. It reminds one of the term *tapa* popularly used in vast Polynesian Islands. The native names of this group are *tapalankas*, *Tapan*, *tapa*, *tapah* for blanket; *tarp*, *tapes* for wrist band and *tapir*, *tapal*, *tapach-a* for trousers.

V

Bark-cloth has a very wide distribution in circum-Pacific areas. It is not only well known in Oceania and Southeast Asia, but also used in ancient China, Sahalin, Korea and Japan in the north, Madagascar and East Africa in the west, and Middle and South Americas in the east. Prof. Shun-sheng Ling, in his recent paper has already studied the *tapa* culture complex and its connection with the invention of paper-making in ancient China. The present author has, in doing her research, also surveyed the *tapa* complex throughout other regions, namely: Southeast Asia, Oceania, Middle and South Americas, and Northeast Asia, in order to compare her data of Formosan natives with these other circum-Pacific cultures. Owing to the fact that the data of the circum-Pacific cultures are presumably known to Western scholars, the author does not intend to present them in this summary. The following are but opinions based on the above comparison.

(1) The Ami has the similar method of bark-cloth making to that of Kapingam-arangi of Micronesia and that of Garo of Assam. In comparing the more complicated processes of *tapa* making among Toradja, Samoan and Tongan with those of the early Formosan settlers that have been recorded in the foregoing early documents, the Ami method of bark-cloth making seems to represent a 'primitive' stage, or reasonable speaking, to show some sort of decadence in technique. If such is the case, the author seems lucky enough to have caught the chance before it goes to disappearance.

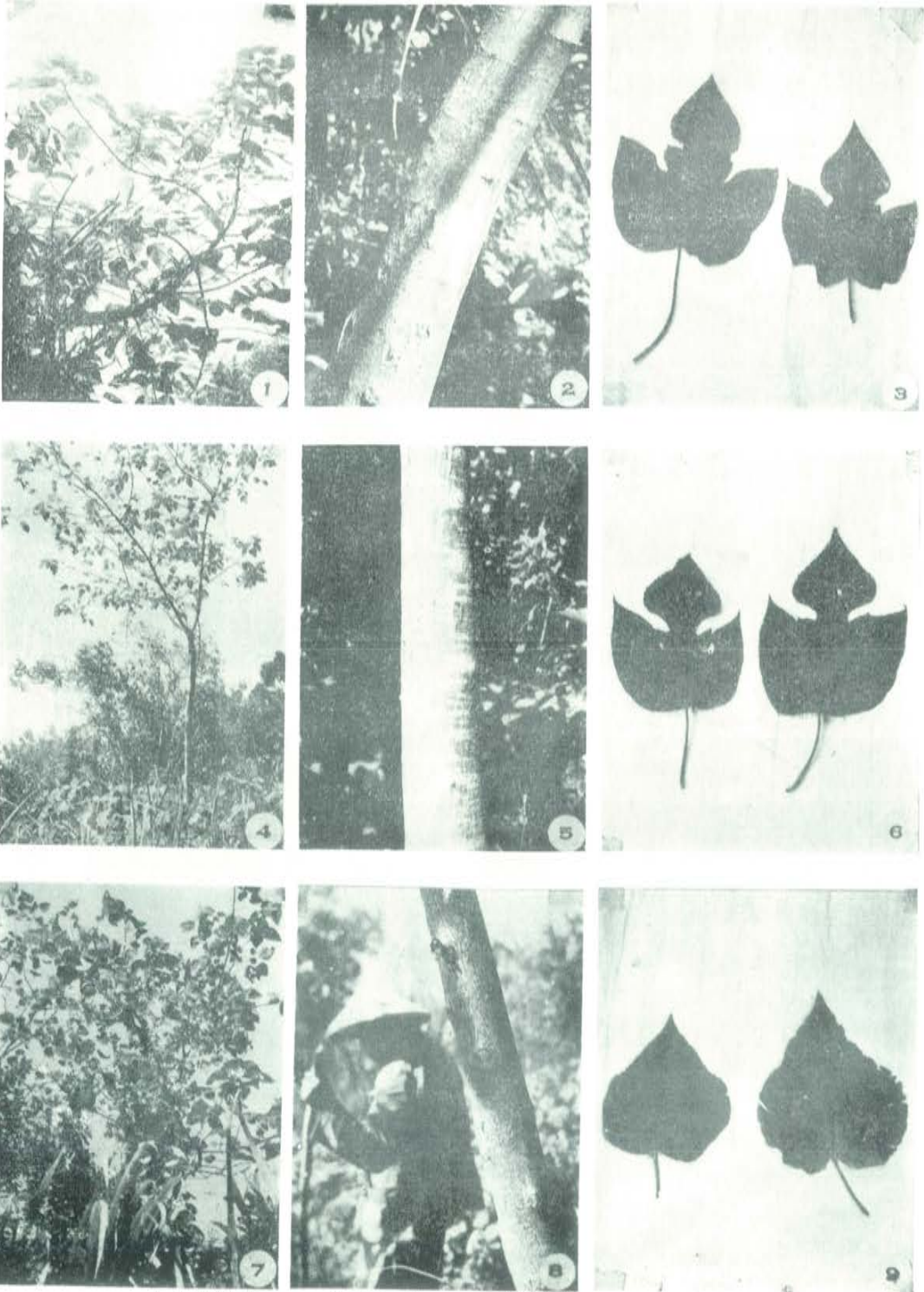
(2) According to early documents, the ancient settlers in Taiwan, mostly Pinpu tribes, had a highly developed method of bark-cloth making. The techniques of felting, stamping, and using of stencil and designed tablet, etc, resemble in many aspects to those of Polynesians and some Indonesians.

(3) The stone bark-cloth beater with parallel grooves in beater-head used by Formosan prehistoric peoples are very much similar to those of Indonesian peoples in Malay and the Philippines. The tools used by the Ami for beating bark are also similar to those used by some Micronesian and Indonesian.

(4) The use of prefixes like 'tap' and 'kap' to cloth terms among various Formosan native dialects might show their relationship with such terms of *tapa*, *kapa* as used by Polynesian and ancient Hawaiian. According to Prof. Shun-sheng Ling, the terms used for bark-cloth in ancient Chinese were *tapu* and *kapu* as recorded in *Shih-chi* (史記) and *Hou-han-shu* (後漢書) dated 2nd century B. C. and 4th century

A. D. (Ling, to be published). As a matter of fact, this might throw light on the origin and development of bark-cloth culture.

(5) In this preliminary research work, the author does not intend to deal much with the problems of relationship and origin of bark-cloth in circum-Pacific areas. But one might expect to know more about these problems as discussed in Prof. Shun-sheng Ling's intensive studies on bark-cloth and the invention of paper-making in ancient China.

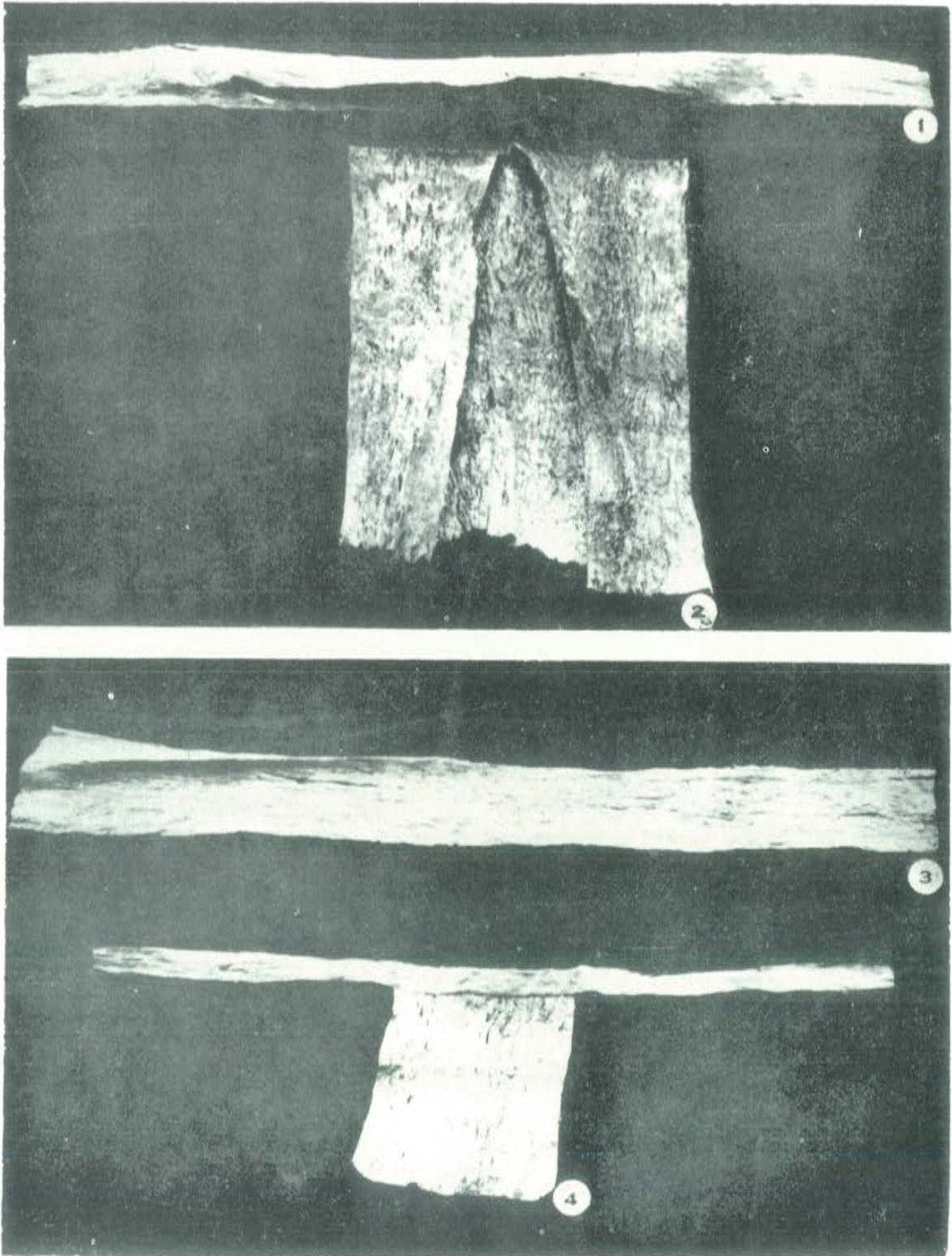


1, 4. 構樹 *Broussonetia papyrifera* vent 之雌雄株, 2-3, 5-6. 幹及葉。
7. 楮樹 *Broussonetia Kasinoki*, Siek, 8-9. 幹及葉。

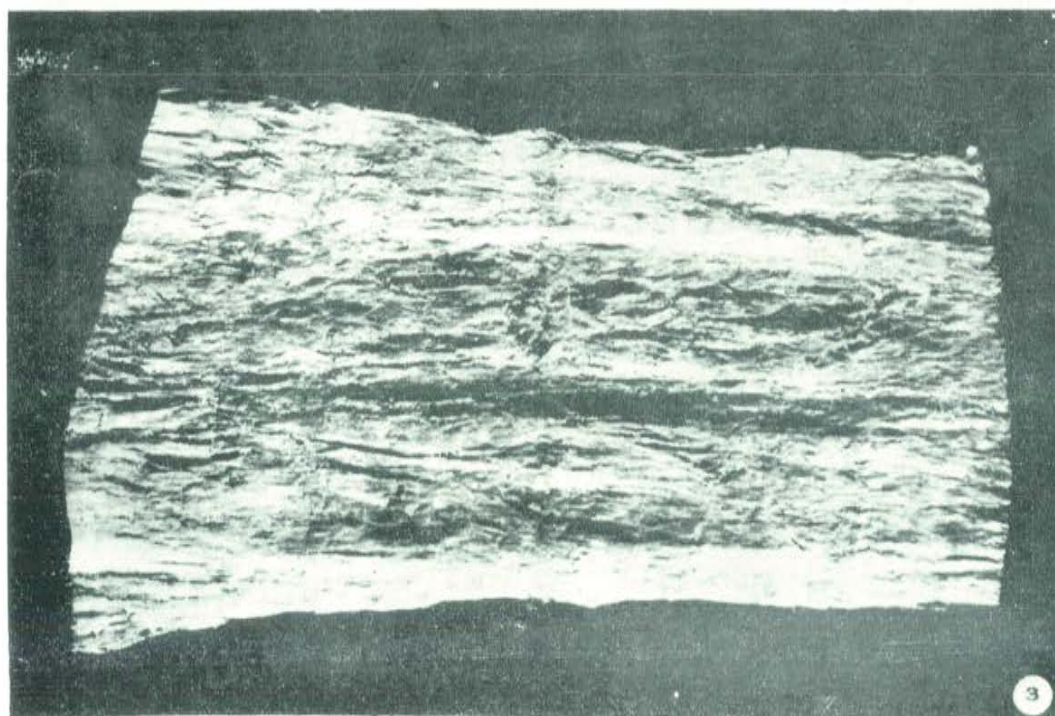
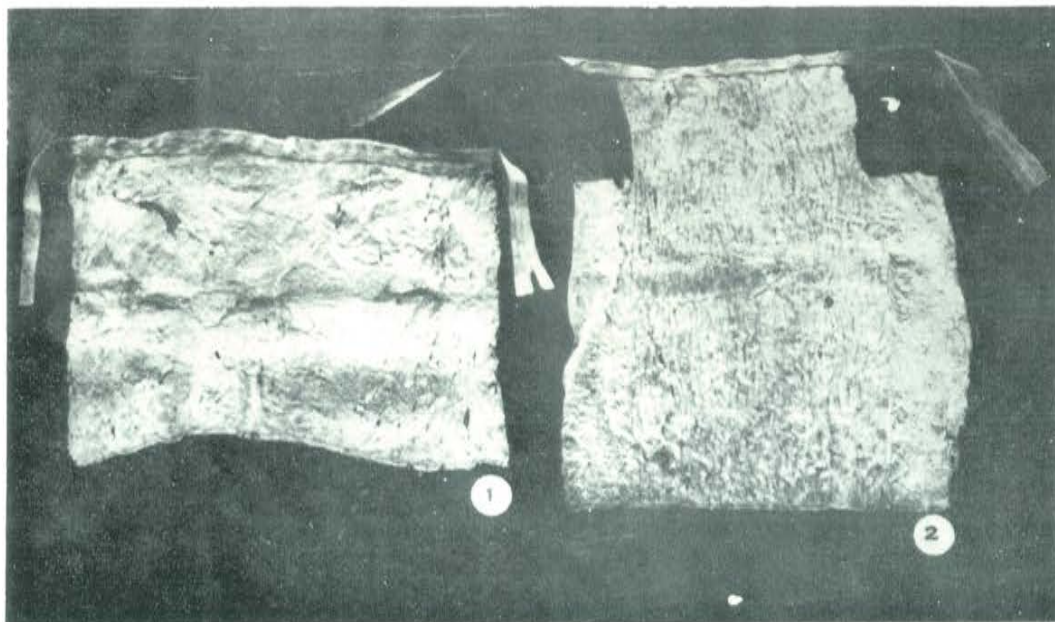


1-2. 穿樹皮布的阿美族男子
An Ami man wears the bark clothes

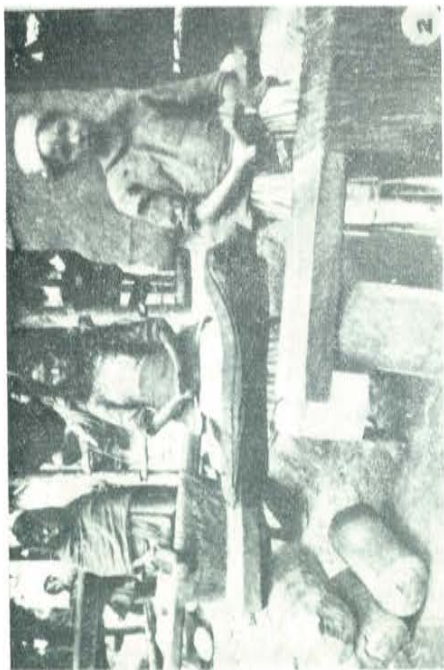
3-4. 穿樹皮布的阿美族婦女
An Ami woman wears the bark clothes



樹皮布製成之衣服：1. 套袖，2. 無袖外衣，3. 頭巾，4. 前遮
Garments made of bark-cloth: 1. the separate sleeves.
2. the upper garment. 3. the head band. 4. the apron.

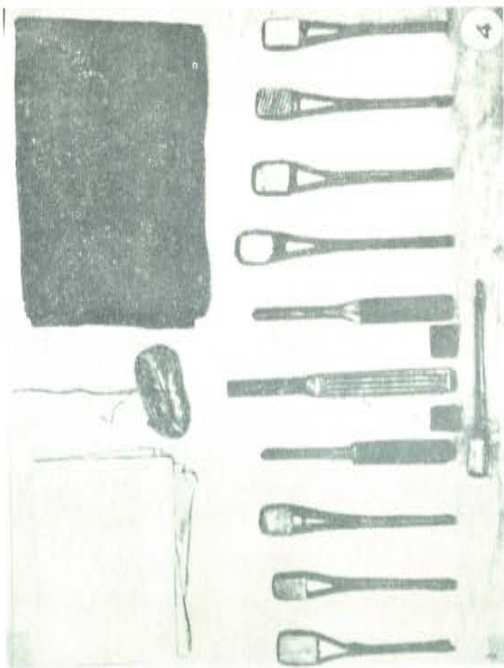


樹皮布製成之：1. 腰裙，2. 長裙，3. 被
Garments made of bark-cloth:
1, 2. two skirts, 3. blanket for bedding.



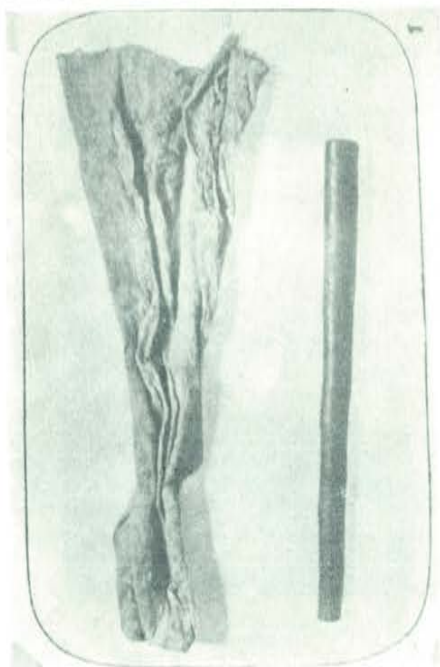
2. 托拉加婦女打樹皮的方法

The method of beating bark cloth among the Toradjian.



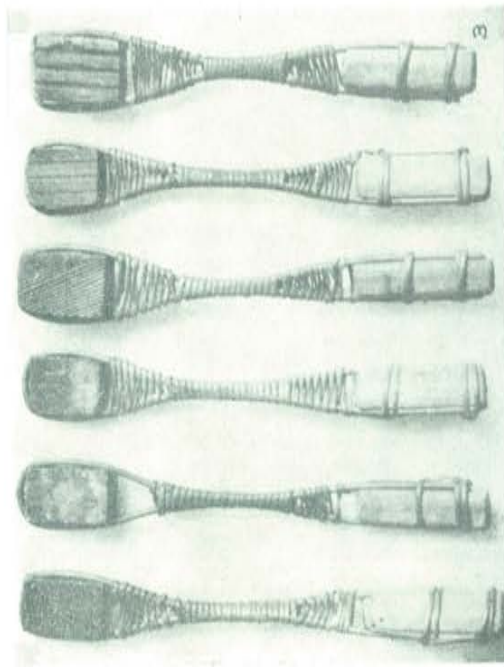
4. 西里伯斯的樹皮打棒，白樹皮布和褐色樹皮布

The bark-beaters, white and brown bark-clothes of the Celebes.



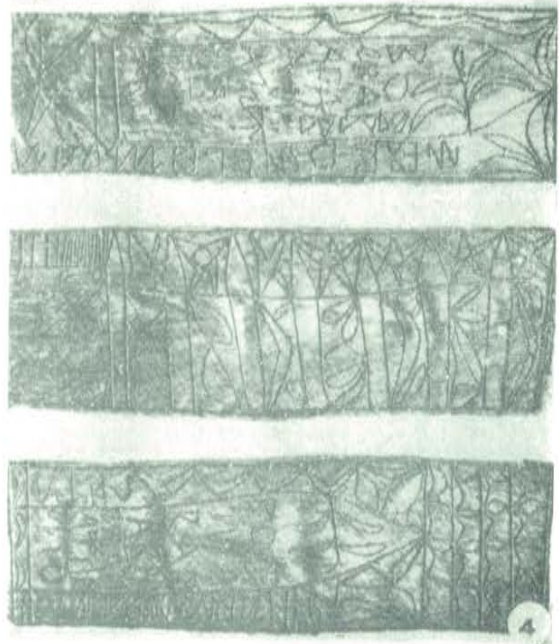
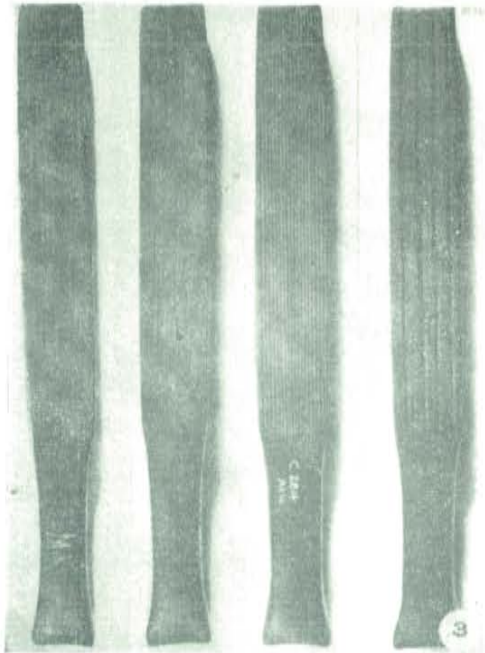
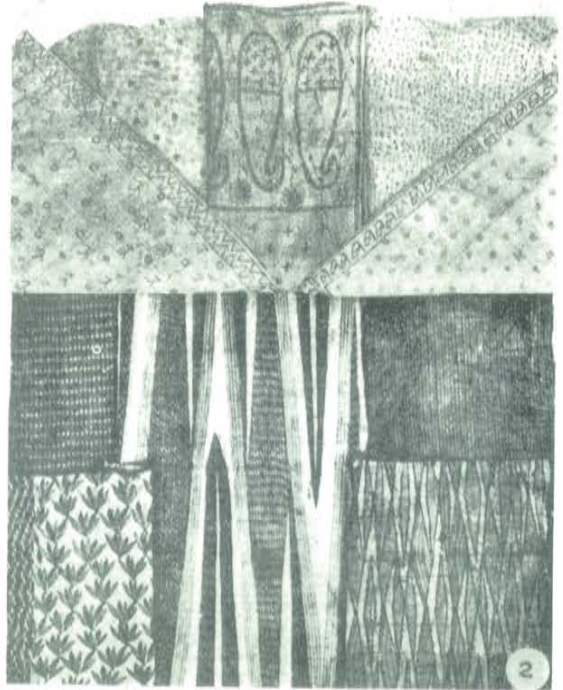
1. 賽曼人所製的白色樹皮布和樹皮布打棒

White cloth of bark and the wooden beater made by the Semang of Kedah.



3. 西里伯斯的樹皮布打棒

The bark-beaters of the Celebes.



1. 玻利尼西亞婦女敲打樹皮布
Polynesian women beating the bark cloth.
3. 樹皮布打棒的四面
Four sides of a Polynesian tapa beater.

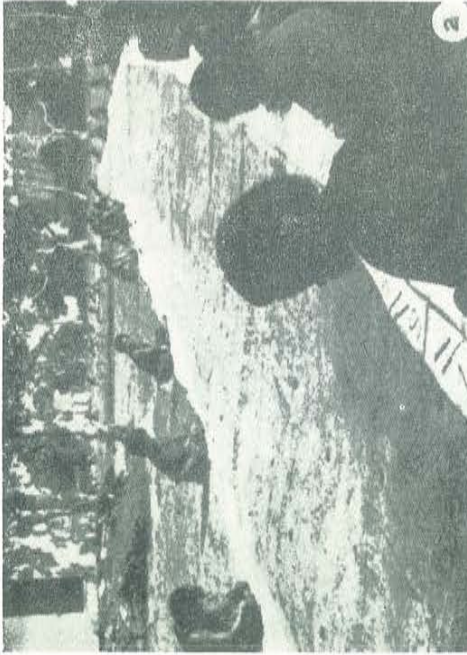
2. 夏威夷島最好的檫皮布
The finest bark cloth of ancient Hawaiian
4. 通加島樹皮布紋的印席
Tongan printing mats which used in the
decorating tapa.



1. 通加婦女在節日時製做大塊的樹皮布
in making long pieces of tapa.
3. 麥克羅尼西亞的樹皮布製作者及樹皮

During the festivals in Tonga the native women were engaged

A bast strip and tapa maker in Micronesia. (after Buck)



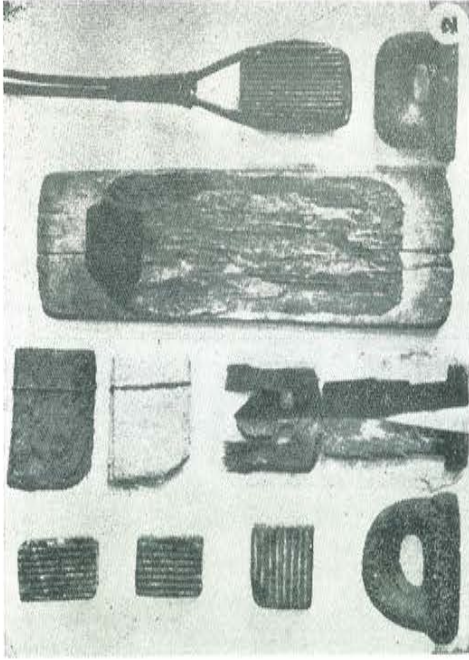
2. 長條的樹皮布常作為長喪禮中的載葬藤的地毯
the funeral procession.

Death rites for high chief: A long strip of Tapa, as a carpet for



4. 麥克羅尼西亞人打製樹皮的方法
Beating the bast. (after Buck)

Beating the bast. (after Buck)



2. 墨西哥的 Otomi 印第安人製紙的器具。

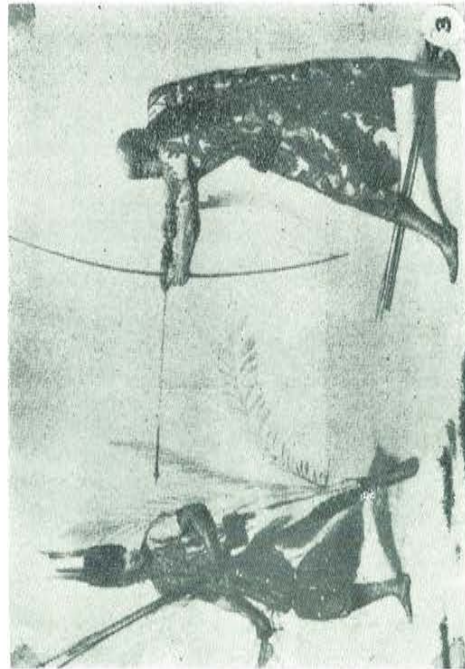
The tools used by the Otomi Indians of Mexico in making their paper. (after Hunter)

4. Cubeo 人製樹皮布
Cubeo manufacturing the bark cloth. (after Steward)



1. 穿樹皮衣的米克羅尼西亞人

A Microneisan wears the bark clothes. (after Buck)



3. 穿樹皮布的印第安武士
Duelists of Yuracare Indian wear the bark clothes. (after Métraux)

BARK-CLOTH, IMPRESSED POTTERY, AND THE INVENTIONS OF PAPER AND PRINTING

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