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In: Bijdragen tot de Taal-, Land- en Volkenkunde, Manuscripts of Indonesia 149 (1993), no: 3,
Leiden, 593-611

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PUSTAHA. A STUDY INTO THE PRODUCTION PROCESS OF THE BATAK BOOK

1. Introduction

The Batak divination book, the so-called *pustaha*,¹ has been known to the western world for at least two hundred years. Its contents were first subjected to systematic study when Van der Tuuk entered the Batak region in 1851. However, we still do not know much about the way these books were produced.

This article represents an attempt to reconstruct this process of production on the basis of a study of the literature; some of the writing materials and writing implements involved are also discussed.

The Batak are usually divided into six different groups; they are not considered a homogeneous people. One might assume then that the Batak would differ in their way of producing a *pustaha*. So far not enough evidence has been found to confirm this. Thus in this article I assume a uniform production process, despite the different ethnic backgrounds of the Batak people.

2. What is a *pustaha*?

There are at least one thousand *pustaha* in public and private collections.² The earliest dated *pustaha* is found in the British Library (Add. 4726); it was donated in 1764 by Alexander Hall.³

¹ Throughout this article I will use the Toba-Batak word *pustaha* (Warneck 1977:194) when referring to the Batak divination book. The Karo-Batak call their book *pustaka* (Joustra 1907) or *pustaka laklak* (Saragih and Dalimunte [n.d.]). The latter means 'book made of tree bark' (see also Warneck 1977:135). In the Pakpak region the book is also referred to as *lapihin* (Fischer 1914:133). It has also been called *lopijan* (Fischer 1914:136 and Winkler 1925:76).

² The word *pustaka* comes from the Sanskrit meaning 'book' (Gonda 1973:128). However, the word *pustaka* does not merely denote 'book'; it especially refers to the physical form of the palm-leaf manuscript (Losty 1982:8).

Most manuscripts in other Indonesian traditions are of a legal, historical, or literary nature. The *pustaka* however mainly deal with magic, divination and medicine. Only a few of the books are about historical affairs or legends, and most frequently one recognizes a European in the background of such texts (Voorhoeve 1977:300). *Pustaka* are compiled by *datu* (medicine men/priests), who use them mainly as reference works. But they can also serve as books of instruction, copied out by aspiring *datu* to complement their oral instruction (Braasem 1951:48). That is why the *pustaka* consist of so many short notes elucidated by magical illustrations and divination tables (*porhalaan*).

Except for rare copies on paper from the second half of the last century, all *pustaka* are written on tree bark. The bark is folded concertina fashion and sometimes furnished with boards. What distinguishes the *pustaka* from other book forms in Asia is that it is written on folded tree bark and that it is extensively illustrated.⁴

The Batak language encompasses several dialects, but the language of the *pustaka* is, in general, uniform though local differences never disappear completely. This language of instruction, or magical language of education, is called *poda* (Kozok 1990a:103). The obscure character of this language makes it extremely difficult to transcribe and translate these manuscripts.

From the chain of *datu* who handed down the text, and who are often mentioned at the beginning of the book, one sometimes can deduce the time the manuscript was made. At times it is possible to identify the regional origin of the manuscript from the use of local styles of writing and dialect words. Another way of dating is of course the acquisition history, which gives us a certain *terminus ante quem*. Usually, though, dating the manuscripts is very difficult.

² This rough estimate was made by H.J.P. Promés. He counted the *pustaka* of all the catalogues known to him and included the *pustaka* he knew existed in private collections (Promés, personal communication, 1992).

³ Voorhoeve 1950:290. See the illustration in Gallop and Arps 1991:115. The first *pustaka* that entered a Dutch public collection can be dated before 1750 (Leiden University Library: Bruikleencollectie Koninklijke Nederlandse Akademie van Wetenschappen no. 247). It was acquired at an auction by the Koninklijk Instituut (the Royal Institute) in 1781 and came from the estate of a merchant from Zeeland (Voorhoeve 1977:223).

A Malay manuscript in Lampung script, *Hikayat Nur Muhammad* (Story of the mystic light of Muhammad), was donated to the Bodleian Library in 1630 (manuscript Jav. e.2). Like the *pustaka* it was written on tree bark and was constructed as a folding book (Gallop and Arps 1991:71).

⁴ The rare folding books made of tree bark from Lampung and the Rejang area are hardly ever illustrated and never so extensively as the examples from the Batak lands.

2.1 Process of production: attempt at a reconstruction

The following reconstruction is based mainly on data gathered from the available literature.⁵ Scrutinizing part of the *pustaka* collection of the Leiden University Library also produced valuable information. Besides, I had the opportunity to watch a *pustaka* being made for tourists.⁶ Today the Batak still produce their books for the tourist industry. Whether or not the modern production of the Batak book is the same as the manufacture by the *datu* in the 'old days', we do not know. Nevertheless it might give us more insight or clues.

1. After the inner bark of the *alim* tree (*Aquilaria*)⁷ has been harvested and dried for some time, the *datu* or one of his pupils selects a sheet of suitable length and width. If he does not find a piece of the right length he might consider putting one or more pieces together, either by means of sewing or glueing. The size of the bark can vary greatly. The smallest *pustaka* I have seen measures 5 x 6 cm (length x width) (24 ff.) and the biggest one 28.5 x 42.5 cm (56 ff.); both are in the private collection of H.J.A. Promés. The length of the bark sheet of the latter *pustaka* measures almost 16 metres.
2. First he will cut both ends straight. The surface will then be evened out with a knife, then further smoothed and polished with rough leaves, for example the leaves of the *Ficus Ampelas burm.* or the leaves of another *Ficus* (Heyne 1927:567).
3. If some repairs on the bark are needed because the surface is split or torn, it has to be done in this phase of production. From what I have seen, the defects are mended with a simple tack (LOr 3432).
4. Folding the bark is not done very precisely. The sheets never align well. In one manuscript from the Koninklijke Bibliotheek (KB/Papierhistorische Collectie IA4) one sheet is folded to half the size of the book format; the maker probably made a mistake in the order. The bark is first folded by

⁵ In Winkler 1925 we find the most information on the production of the *pustaka*, especially pages 76-77. The earliest reference on this subject is 'Beschrijving' 1778, which contains valuable information. See also Fischer 1914:129-37, Joustra 1926:13 and 155, and Agthe 1979:88-92. For descriptions of Batak manuscripts see among others the catalogues of Voorhoeve 1961, Manik 1973, Voorhoeve 1975, Voorhoeve 1977, Ricklefs and Voorhoeve 1977, Pigeaud and Voorhoeve 1985.

⁶ In 1990 I visited a family at Siharbangan (Samosir Island, Sumatra) where father and son were making *pustaka* for the tourist industry. They did not make the boards: those were made by the wood-cutter of the next village. The production process was documented, both in words and pictures.

⁷ Till now the *alim* tree was presumed to be the *Aquilaria malaccensis* (e.g. Kozok 1990a:103). However, the Rijksherbarium Hortus Botanicus at Leiden, identifying a sample from a *pustaka* from the Koninklijke Bibliotheek (KB/Papierhistorische Collectie A14) in 1992, could not confirm this data. Their results showed a positive identification on the *Aquilaria* family, but they were not able to identify the sort 'malaccensis'.



Fig. 1. Ultra-violet reflectography photo clearly showing blind lines on a sheet from a pustaha (KB/Papierhistorische Collectie: IA4).

hand, after which the folds are set with a mallet. By this last action the surface of the bark is broken along the folds.

5. Sometimes the sides of the folds are cut evenly; most of the manuscripts I have seen, however, show irregular sides.

6. Both the front and the back of the bark are finished with rice water or rice starch to improve the adhesion of the ink to the surface.⁸ Today the bark of the tourist *pustaha* is stained with a stuff called Parmagam, a chemical bought at the local drugstore.

7. The writing surface of the bark is often supplied with blind lines to facilitate even writing (see Fig. 1). They are drawn parallel to the fold with the aid of a bamboo ruler (*balobas*) and a pointed bamboo knife (*panggorit*).

8. When all this is done the writing can begin. The copyist might want to try out his pen and thus little scribbles can often be found on the first sheet under the front cover.

If the *pustaha* is used as a notebook it will grow over the years, so to speak. It might be lent to another *datu* who is willing to share his knowledge with a colleague. That is one reason we find books written in more than one hand.

9. After the writing has been completed we come to the last phase of the production process: the boards. Not all *pustaha* were provided with covers. It is a pity that in the past many Batak manuscripts without covers got new ones. When the collection of Van der Tuuk entered the Leiden University Library in 1896 all the *pustaha* that had no covers were provided with new ones. Today only two manuscripts of this collection still have the original boards. From the entire collection of the Leiden University Library only 23 of the 200 *pustaha* have one or both original covers (Voorhoeve 1977:305-306).

The variety in decoration and colour of the boards is great. Some are carved, some are plain, some are painted black or brown, some are not painted at all. In one case leather is glued on the boards (Fischer 1914:133, manuscript 695/1). Other *pustaha* have boards made of leather or goatskin (Ricklefs and Voorhoeve 1977:13, manuscript Batak 3, and Ricklefs and Voorhoeve 1977:20, manuscript 1931.2.16.14 and Fischer 1914:133, manuscript 985/30). Yet another *pustaha* is glued in a wooden box which closes with a sliding lid (Pigeaud and Voorhoeve 1985:16, manuscript 533). Most commonly, however, the front board is carved and the back board is left smooth.

Although woodcarving was a separate trade in Batak society, only the *datu* had the right to carve sacred objects. It was he who best knew the

⁸ Some authors refer to this finish as 'rice water' (Braasem 1951:47, 'Beschrijving' 1778) and others as 'rice starch' (Winkler 1925:76; Agthe 1979:92). That the bark was coated with a starchy substance was proven by a chemical test (iodine potassium iodide stain) on a sample from a *pustaha* from the Koninklijke Bibliotheek (KB/Papierhistorische Collectie IA4:A1a4).

technical skills connected with the religious instructions.

10. Frequently the manuscript is held together with one or two straps. Usually these are made of bamboo or rattan, either plaited or flattened, and sometimes of plain leather. When straps are present we very often find a carrying string or a band attached to the boards by means of one or two holes on each of the sides. The strings or bands can be made from the same material the straps are made of. *Ijuk*, the hairy fibres on the outside of the stem of the aren palm, are also used for this purpose. The straps and the carrying string enable the owner to hang his book on the wall of the house. Moreover it makes it easier for him to take his handbook with him on his far travels.

2.2 The folding book

2.2.1 Asia

One of the characteristics of the *pustaka* is that it is folded. Except for China, Japan and some parts of Southeast Asia this type of book has never been very popular in Asia. In India, for example, the folding book is practically unknown. One exception is the prepared cotton folding book in use among the merchants of Mysore.⁹ It has been suggested that this book form was taken from the Chinese (Gaur 1979:28). In the case of letter writing the Indians did fold a single palm-leaf. Throughout the centuries, though, the main Indian book form was that of the palm-leaf manuscript, the so-called *pothi* format.¹⁰ It held a strong position even after the Moghuls introduced Islam with its typical codex book form.¹¹ In Tibet and Nepal folding books are known to occur, but here again the predominant book form is the *pothi* format.

In the northern regions of Burma and Thailand folding books are very popular. In Cambodia and Laos they are also popular, but to a lesser extent.

⁹ A similar folding book made of prepared cotton is mentioned in Dachs 1982: 236, no. 160. It is a Sikh manuscript in Gurmukhi script from the eighteenth century.

¹⁰ The Hindi word *pothi* is a derivative from the Sanskrit word *pustaka* (see note 1). By *pustaka* is meant a palm-leaf manuscript: 'The finished pile of leaves whether talipot or palmyra was normally strung on a cord through pre-bored holes, and protected by a pair of covers, usually wooden, at top and bottom of the pile' (Losty 1982:7). The term *pothi* 'is used to describe this type of book, for the format of the palm-leaf manuscript was used also for many other materials' (Losty 1982:8). Thus *pustaka* refers only to palm-leaf manuscripts, while *pothi* refers to any book that looks like a *pustaka*!

¹¹ A 'codex book form' refers to a book made up of folded sheets arranged inside one another so as to make a gathering or quire. A number of these gatherings sewn together form the book block. The whole is usually protected at the top and the bottom by some kind of material.

Usually they are made of cast paper¹² and some of them are beautifully illustrated. Almost without exception they contain Kammavada texts. They are intended for kings and other high-ranking persons. The non-illustrated books were used for administration, rough copies of literary works and sometimes for letters. Next to these folding books palm-leaf manuscripts were used. World-famous are the luxurious books in *pothi* format executed in some precious material, especially those from Burma and Thailand. The non-inscriptional works of these countries go back to the fourteenth and fifteenth centuries (Herbert and Milner [n.d.]).

In China the folding book made its entry at the end of the Sui dynasty and the beginning of the Tang (ca. 618). About 850 the folding book increasingly replaced the scroll and rod system. 'With this new kind of binding, a reader could easily turn to any leaf to look up a word or a sentence, without having to unroll the whole book' (Liu Guojun and Zheng Rusi 1985:64). Three types of folding books came into use: the sutra binding (*jingzhe zhuang*), the whirlwind binding (*xuanfeng zhuang*) and the folding album (*ceye*).¹³

It was at the end of the tenth century that this book form in its turn was superseded by the printed book in bound-volume form. For handwritten books the sutra binding never disappeared, and was in fact always regarded as the most suitable book form for the devotional act of copying Buddhist texts (Mote and Chu 1989:52).

During the Heian period in Japan (794-1185) the folding book was imported from China. The Japanese distinguish three types of folding books, called *orihon*. The regular accordion book was traditionally in use for Buddhist texts, like the Chinese sutra binding. Another accordion style includes the folding albums. The *nori-ire gajo* albums, which correspond with the Chinese *ceye*, and the *nobiru gajo* were used for calligraphy and painting.¹⁴ The flutter book (*sempuyo*) is a folding book, in which 'a single cover encircled the text from front to back of the resulting stack' (Ikegami 1986:3). This last form resembles the Chinese whirlwind binding.

¹² By cast paper I mean paper made 'by pouring the macerated fibres upon the mould's surface' (Hunter 1978:111). This method most likely preceded the method of papermaking in which the mould is dipped into the fibrous water.

¹³ The disadvantage of the sutra binding was that the folded paper could easily come unfolded and spread out. To avoid this another sheet of paper was added to the folded pile, one half was pasted to the first leaf and the other half to the last leaf. This was called the whirlwind binding; the extra sheet held the pile together and prevented it from spreading out (Liu Guojun and Zheng Rusi 1985:64-65). A later form resembling the sutra binding is the folding album. It 'consists of normal sheets, folded and pasted end to end, so that two facing pages only can be opened at one time. The form is suitable for preserving remounted pages and for displaying art work, as in painting and calligraphy albums' (Edgren 1984:12).

¹⁴ The folding album, in which sheets of paper twice the width of the book are folded in half and pasted to each other at the fore-edges, is called the *nori-ire gajo*. The album called *nobiru gajo* consists of double width sheets, folded in half and pasted, to produce double-layered pages (Ikegami 1986:52).

2.2.2 Indonesia

In Indonesia the folding book is very rare outside Sumatra. We know of at least one manuscript made of *dluwang* folded concertina fashion (Pigeaud 1968:709, LOr 11.092). This Islamic catechism probably originates from the eastern Pasisir of Java and was written in the sixteenth or the beginning of the seventeenth century. A similar folding book (Raffles 1980, II:67) written on *dluwang* in 'Kawi script' and well illustrated is reported to have come from Cirebon, West Java. As far as we know this manuscript has not been traced yet.

In South Sumatra, people like the Lampung and the Rejang did produce folding books made of tree bark, but these are very rare and were seldom illustrated. The similarities between these books and the *pustaha* are striking though.¹⁵

Although there are many Indian elements in Batak culture, it is very unlikely that the folding book came to the Batak under the influence of Indian culture. Nor does it seem plausible that this book form reached the Batak from one of the other islands in the Indonesian Archipelago. We know the Batak had contact, directly or indirectly, with Chinese traders from the seventh century on (Kozak 1990b:13-15). The early Chinese travellers went to Sumatra to visit the kingdom of Srivijaya to study Buddhism, and to copy and translate manuscripts. Earlier we saw that the sutra binding remained popular for a very long time for copying sacred Buddhist texts. Although many points are unclear and more systematic research is needed, I am very much inclined to believe that the Batak could well have taken their book form for the *pustaha* from the Chinese, either directly or indirectly.

3. Writing materials and writing implements

The Batak not only wrote on tree bark but also on other materials. Although they used stone to express their ideas, only few inscriptions in stone are known.¹⁶ On the other hand we find numerous inscribed bamboos and rattan of which the Karo-Batak laments (*bilang-bilang*) and pressing letters (Toba: *pulas*; Karo: *musuh berngi*) are the most notorious. Also known are inscriptions on bone in the form of amulets and charms.

¹⁵ The question whether the Lampung, the Rejang and the Batak have a common background has not been solved yet. Nevertheless, there is a theory that presupposes an Early Sumatran script arising under Old Javanese influence. In their turns the Batak, Lampung and Rejang scripts would have been derived from this Early Sumatran script (Kozak 1990a:100-102). To suggest a common book culture together with this early script would be worth investigating.

¹⁶ The following stone inscriptions in the Batak language are known:

1. Aek Simare-mare (Voorhoeve 1949);
2. Liang Ginorga near Lobu Haminjon (Nai Pospos) (Voorhoeve 1939);
3. Padangbujur in Padang Lawas (Schnitger 1989:Plate VII/2).

Since the Batak maintained trade relations with the Coastal Malays and the Chinese to sell their forest products, they must have had knowledge of paper long before the first Europeans entered their territory. Nonetheless it was not until Van der Tuuk made contact with the Batak that they adopted the occasional use of European paper as a writing material (Voorhoeve 1977:101).

3.1 *Tree bark*

3.1.1 *Barkcloth and crude tree bark*

It is essential here to point out a misconception one often encounters when *pustaka* are discussed. More than once the mistake is made of confusing tree bark in its crude form with so-called barkcloth.¹⁷ The latter is also known as *tapa*¹⁸ or by the Indonesian name *fuya*. Principally *fuya* has been used for clothing, hence barkcloth.

In order to loosen the fibres and force them to intertwine, the bark needs to be beaten. The marks of the beater can usually be detected on the finished product. It is important to mention that *dluwang*, 'Javanese paper', should also be classified as barkcloth. It is, however, the most refined product of its sort within the Indonesian archipelago (Loebèr jr. 1915:31-64).

The crude tree bark, by contrast, has not been beaten at all, but is stripped directly from the tree. Thus *pustaka* are written on crude tree bark and not on beaten tree bark or barkcloth (see Fig. 2 and 3).

3.1.2 *Harvest of the bark*

As mentioned earlier, the Batak use the inner bark of the *alim* tree (*Aquilaria*) for their *pustaka*. The tree is indigenous to Sumatra and well known for its resin. This forest product was already known in antiquity (Greshoff 1897:172) and its trade on Sumatra has long been dominated by the Batak. In general the outer bark is dead tissue, while the inner bark is living tissue essential in the transport of nutrients for the tree. Therefore the inner bark is much stronger and much more flexible than the outer bark.

¹⁷ See for example Gallop and Arps 1991:113, Voorn 1978:1 and Hussmann 1968:9.

¹⁸ The term *tapa* is known as a general denotation for any Polynesian barkcloth. 'Under this name [...] the term was universally accepted for the designation of barkcloth, including material from other tropical regions: Indonesia, Africa and South America' (Kooijman 1988:15).

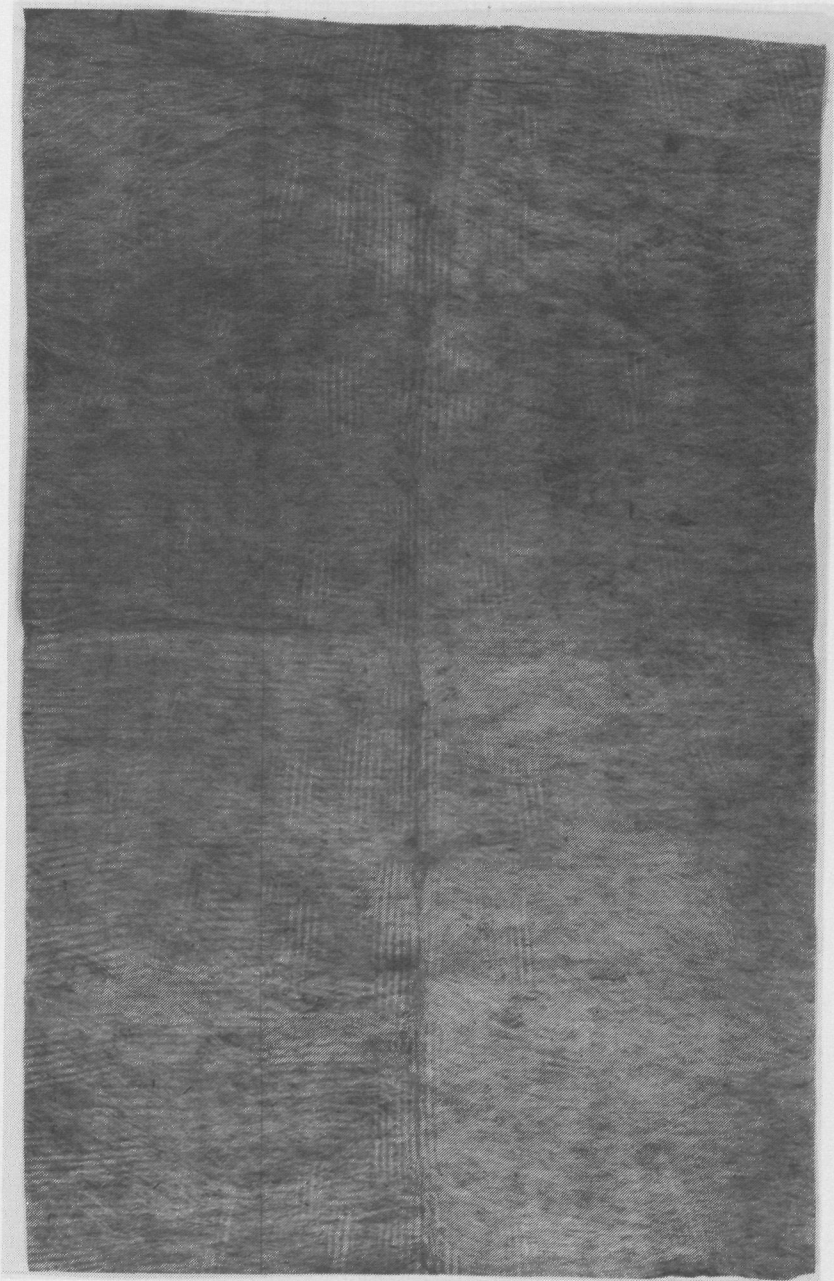


Fig. 2. *Dluwang* with clear marks of the beater
(KB/Papierhistorische Collectie: IAe).

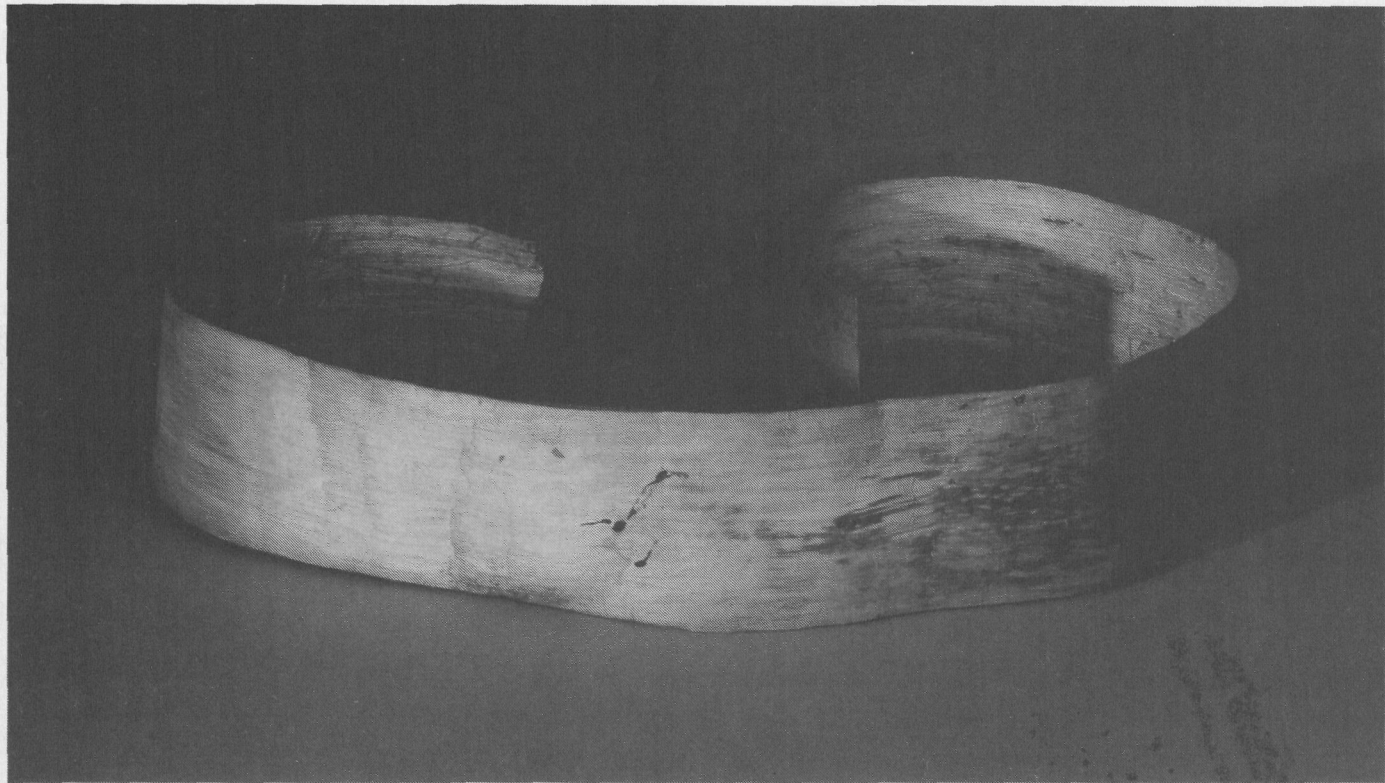


Fig. 3. Crude bark from the *Aquilaria* tree used for *pustaha* (private collection).

Table 1. Descriptions of Batak writing pens made from the *Arenga saccharifera*.

author	description	Batak name
Winkler 1925:76	stiff little rod of the red-haired leaf sheath	<i>tarugi</i>
Van der Tuuk 1861:234	stiff little sticks found in the horsehair-like <i>ijuk</i>	<i>suligi</i>
Tampubolon 1960:125	little <i>tarugi</i> stick	
Beschrijving 1778	thickest sticks of the hair of <i>ijuk</i> , which they make pointed in front	
Bolten 1987:29	stiff prickles	
Promés 1992 ¹	stiff little rods between the horsehair-like fibers (<i>ijuk</i>)	<i>suligi</i>
Nainggolan 1900 ²	from the <i>tarugi boru-boru</i> between the blackest horsehair (<i>ijuk</i>)	<i>sagar</i> (Siporok)
Fischer 1914:141	from the vein of an arèn-leaf (?), pointed at one end and with a slit over the whole length at the bottom (Karo)	
Gallop and Arps 1991:113	twigs found in the fiber	<i>tarugi</i>

¹ Personal communication H.J.A. Promés, 1992.

² Nainggolan 1900 refers to Dr F.J. Nainggolan, a medical doctor who taught reading and writing at the *Inlandsche School* (Native School) at Sipirok about 1900. He served as an informant for H.J.A. Promés (personal communication H.J.A. Promés, 1992).

In the literature references to the harvest of the bark are scarce and only appear in general terms.¹⁹ If we compare these data with those of the harvest of the barks used for *fuya*, then the picture gets a bit clearer.²⁰

Some of the sheets necessary for production can be of exceptional length. One *pustaka* (LOr 3428), for example, measures over fifteen metres in length, all one piece. For the harvest of such huge sheets it is unthinkable that the tree would not be felled. In general the trees were probably cut before the bark was taken. The whole bark would then be cut lengthwise in wide strips and peeled off. According to one reference this process is not time-consuming (Heyne 1927:1149 no. 214.5430).

The next thing to do is to separate the outer bark from the inner. This can be done either by scraping or scouring.

If the sheet is not long enough for the text, the writer does not hesitate to put two or more pieces together. In one *pustaka* (LOr 3432) two pieces of five metres each were stitched together. When all this is done the sheets are put under the roof of the house to dry.

3.2 *Suligi: Batak writing pen*

A number of pens with which the Batak wrote their *pustaka* have been preserved in Dutch ethnographic collections (Fischer 1914:141). To study them is not much of a problem. But to find out exactly what material these pens are made of leads to much confusion. Most of the authors we consulted state that the pen is cut out of some part of the sugar palm (*Arenga saccharifera*). Precisely which part of the tree seems to be the question, as we can see in Table 1.

The following botanical observations are relevant to this point: the stem of the sugar palm is covered with horsehair-like fibres, called *ijuk*; among these fibres hard projections are found, the so-called *tarugi*. One distinguishes the *tarugi jantan*, which is round in cross section, and the *tarugi boru-boru*, which is wider and has a more oval form, as well as a characteristic longitudinal slit.

Based on these morphological traits it is clear that the Batak make their writing pens from these *tarugi boru-boru*. In the *pustaka*²¹ and in the dictionary by Van der Tuuk (1861:191, 234) these pens are called *suligi*. The word *tarugi* only refers to the material of which the *suligi* are made.

¹⁹ See amongst other things Winkler 1925:76, Heyne 1927:1149/ no. 214.5430, Agthe 1979:88-92, De Clercq 1909:236 no. 1414 and 'Beschrijving' 1778.

²⁰ *Fuya* gained the attention of foreigners more than one hundred years ago ('De gloegloe-kultuur' 1878). The major studies are: Kooijman 1963, Loebèr jr. 1915, Adriani and Kruijt 1901. All three of the authors give comprehensive accounts on the harvest of the bark.

²¹ Personal communication H.J.A. Promés, 1992.

Table 2. Black ink recipes (see footnote 24 for an explanation of the numbers).

ingredients	ink recipes														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Toothblack (<i>baja</i>)	x	x	x	x	x	x									x
Soot							x								
Soot of (<i>damar</i>) resin								x	x				x		
Charcoal (<i>andulpak</i>)											x				
Sweet palm wine (<i>pola</i>)													x		x
Chicken blood						x									
Fresh water									x						
Drops of oil									x						
<i>Sapa</i> flowers									x						
Red pepper							x		x						
<i>Damar</i> resin				x			x								
saps and juices															
Ginger									x						
(<i>Hajoran</i>) lemon			x						x						
Sugar cane							x		x				x		
<i>Sona</i> tree									x			x			
Lemon tree										x					
<i>Otok</i> shrub											x				
Bark of the <i>haundelok ubor</i>													x	x	
Bark								x							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

The pens are cut as follows. With the slit upwards the end is bevelled. The point is then split for a few millimetres and the sides cut to a point. Finally the point is bevelled to the right. When they are used for Arabic or Jawi script the point is bevelled not to the right, but to the left.²² Normally the pens are not wider than half a centimetre. The length varies from 10 to 30 centimetres. Pens of this kind are very common all over Sumatra; outside the Batak lands they are called *kalam*, like the modern Indonesian word for pen, or *kalam sagar*.

According to some authors the Batak also use pens made of the *sampil-pil* fern (*Gleichenia linearis* Clarke).²³ The firm stems that grow straight up from the roots are used. The thickness varies from three millimetres to one centimetre. The best ones are the old and black stems. Apparently these pens are also in use in other parts of Indonesia (Heyne 1927:97).

Pens made of buffalo horn or bamboo, called *tahunagan*, have also been mentioned (Winkler 1925:76). They have pointed ends; a deepening at the end of the point serves as an ink reservoir.

3.3 Recipes for black ink

The general word for ink in the Batak language is *mangsi*, which refers to black ink as well as to other colours. The text of the *pustaka* is always written in black ink, while the illustrations are usually done in red and sometimes in yellow. In the literature we found fifteen references concerning the black ink the Batak wrote with.²⁴ See Table 2.

Some recipes are rather simple, others are more elaborate. The most detailed recipe, no. 9, is taken directly from a *pustaka*. One must keep in mind that the ingredients may vary locally and that some of them do not contribute to the physical properties of the ink but are added for magical or religious reasons.

Six authors mention *baja* as the basis of the black ink. It is not unthinkable however that the others also had *baja* in mind when referring to the basis of the ink. The authors who only mention soot as the basis of the ink may not have been familiar with *baja*. The fact is that *baja* is a tarry substance obtained by precipitating the smoke of smouldering (resinous) wood,

²² The informant Dr F.J. Nainggolan showed H.J.A. Promés how to cut a pen from the *tarugi boru-boru* (personal communication H.J.A. Promés, 1992).

²³ De Clercq 1909:247 no. 1637; Winkler 1925:27; Heyne 1927:97.

²⁴ The ink recipes 1 to 15 in Table 2 are taken from the following sources: (1) Lekkerkerker 1916:38; (2) Nainggolan, see note 22; (3) Warneck 1977:154; (4) Brenner 1894:296; (5) Modigliani 1892:100; (6) a student from Parlilitan gave this recipe in December 1964 to H.J.A.Promés, see note 23; (7) 'Beschrijving' 1778; (8) Agthe 1979:92; (9) Saragih and Dalimunte [n.d.]:34. See also Voorhoeve 1977:298 no. A38b; (10) Warneck 1909:126; (11) Tampubolon 1960:125; (12) Van der Tuuk 1861:158; (13) Winkler 1925:76; (14) Warneck 1977:279; (15) Fischer 1914:137.

mostly from the Manggistan tree, against a knife, a sword or a potsherd (Joustra 1926:179).

With the *baja* the Batak also blackened their teeth, a ritual closely related to the practice of filing the incisors of children coming of age.

As for the other ingredients, *damar* resin turns up a few times. Resins are not uncommon in ink recipes. They serve as a binding agent: the ink then adheres better to the fibres of the writing material. It also influences the viscosity of the ink, preventing it from running. For the same reason drops of oil may have been put in. It is known from other cultures that blood was used as a binding medium.

Wine and vinegar are old remedies to preclude discoloration. As such the *pola*, sweet palm wine, is most likely added. And perhaps some of the saps and juices like those of the lemon tree and the *hajoran* lemon are added for the same reason. The addition of red pepper has the same result as that of wine and vinegar.

Fresh water would dilute the ink, and sugar-cane juice must have the same effect. Why the other ingredients are put in the ink is unclear to me. In our search to detect the reasons why, we should never forget that they may be of magical or religious origin.

4. Conclusion

In the above reconstruction a number of aspects of the production of the *pustaha* become clear.

First, the production process is not a precise one. The sides of the book are irregular, the folds are set in such a manner that the surface of the bark breaks, the bark sometimes shows roughly repaired tears and it is not uncommon to lengthen the bark.

Secondly, it is striking that the books differ considerably. For example, the decoration of the boards varies greatly and several materials are used for straps and carrying strings. Besides, *pustaha* seem to occur in all sizes. As to the ink recipes the basis seem to be *baja*, but the other ingredients added change per recipe.

Thirdly, there seems to be no division of labour in producing the Batak book. Only the *datu* and his pupils manufacture the *pustaha*, nobody else is involved.

It has been a relatively new thought in western codicology that the physical characteristics of manuscripts can contribute much to tracing their origin. As one of the striking traits of the Batak book is the use of the folding book technique, we looked into the origin of the folding book in Asia. As China is most likely the birthplace of the folding book in Asia and as this book form is practically absent in Indian society as well as in the Indonesian archipelago except for the Batak lands, a 'Chinese connection' was presumed. I realize that this is a provocative suggestion, the more so as

many aspects of Batak life, especially in the magical and religious domain, are imbued with old Indian beliefs. Nevertheless I think this connection is worth considering.

Until now the study of *pustaha* has concentrated on their content with little attention paid to their production. In future we should pay more attention to the form of the manuscripts and the way they are produced. After all, form and content are indissolubly joined together.

ABBREVIATION

LOr Codex Orientalis, Leiden University Library

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