



Silk Production and Marketing in Cambodia in 1995

A Research Report for the
Revival of Traditional Silk Weaving
Project, UNESCO Cambodia

Morimoto Kikuo

Edited by Louise Allison Cort

About the Author and the Editor / Morimoto Kikuo (1948–2017) trained in hand-painted silk textile decoration in Kyoto before moving to Thailand in 1973. After completing his UNESCO-commissioned 1995 survey of textile production in Cambodia, he moved to that country to establish the Institute for Khmer Traditional Textiles (IKTT).

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Abstract | In 1995, Morimoto Kikuo (1948–2017) carried out field research in Cambodia for a UNESCO project on the revival of traditional silk weaving. His report creates a benchmark for understanding the circumstances of village-based textile production in the aftermath of the devastating Pol Pot era and the early days of a revival of silk production. After introducing the categories of traditional Khmer textiles, the report summarizes the circumstances of production province by province, capturing the voices, knowledge, and memories of numerous village specialists. The report then considers conditions of sericulture for indigenous yellow silk versus import of Vietnamese machine-spun silk, knowledge and use of natural dyes, knowledge of ikat techniques, looms and weaving equipment, and markets and the role of middlemen. The report concludes with recommendations for supporting indigenous sericulture, improving direct marketing opportunities for weavers, and enhancing traditional weaving and dyeing skills by ensuring that the skills are passed down from experienced elders to younger weavers.

Editor's Introduction

Morimoto Kikuo died on July 3, 2017 at his home in the village known as Wisdom from the Forest, a community for textile production that he helped create on former wasteland north of Angkor, in Cambodia.

Mr. Morimoto spent two decades living and working with textile specialists in Cambodia. He was inspired to move there after UNESCO invited him to conduct a survey in 1995 of the conditions of textile production in the difficult days of the aftermath of Khmer Rouge rule followed by Vietnamese occupation.¹ Born in Japan in 1948, he had trained and worked as a painter of silk fabrics for kimono before moving to Thailand in 1973 to volunteer with weavers in Lao refugee camps. When he received the UNESCO invitation in 1993, he was operating a shop called Bai Mai in Bangkok, selling silk textiles handspun, handwoven, and colored with natural dyes by ethnic Khmer weavers living in Surin province, Northeast Thailand.² In Cambodia, he immediately saw how he could put his knowledge and organizational skills to work in response to the obvious urgent needs. To do so, he founded the Institute for Khmer Traditional Textiles (IKTT).

This document, prepared for UNESCO in 1995 at the conclusion of his difficult and sometimes dangerous survey earlier that year, records Morimoto's observations at the start of these twenty years of remarkable accomplishments. When cancer was diagnosed and he was told he had five years to live, he chose not to pursue extreme medical intervention but to continue his work for Wisdom from the Forest. I believe this brave decision arose from Mr. Morimoto's deep conviction of his personal relationship—and that of his lifelong work with silk—to the natural environment.

Mr. Morimoto's profoundly meaningful and influential actions to revitalize silk weaving in Cambodia and return it to the highest standard, as exemplified by antique ikat-patterned textiles, had their germ in his UNESCO survey. One can note his careful observations of the locations of looms in relation to homes, the positioning of mulberry trees close by the house where hungry silkworms are raised, and the importance of cool forest sheltering the trees where lac insects thrive. He was already thinking of the importance of the village in the forest as the setting for the best weaving. He thought hard too about where

Notes

Original notes from the report by Morimoto Kikuo are indicated by his initials (MK). Notes provided by the editor

are indicated by (Ed.)
1 Morimoto 1995. Morimoto's survey was preceded by a shorter exploratory visit

(Lefferts ms) (Ed.).
2 Morimoto 1990 (Ed.).

and how to encourage sericulture to produce the lustrous indigenous yellow silk. He lamented the meager wages of village weavers at the mercy of middlemen and urged support for their well-being and financial independence. All these aspects of his attention bore fruit in *IKTT* and the *Wisdom from the Forest* project.

During twenty years in Cambodia, Mr. Morimoto patiently reassembled all the elements necessary to producing radiantly beautiful silk. He found the old women whose minds and fingers retained ikat tying skills or who knew the processes of natural dyes, and he arranged for them to transmit their knowledge to younger women. He made room for mothers to work alongside their infants or small children and for husbands to do useful work to support the project. Weavers and their families built homes in the *Wisdom from the Forest* village, opened a school, grew vegetables, and raised fish and livestock. Mr. Morimoto believed that no less than a complete village world, and the peace of mind that came from living and working in it, could bring forth good textiles. The superb accomplishments of the weavers who worked with him and continue to operate *IKTT* are testimony to that truth.³

Mr. Morimoto documented his philosophy and progress in several volumes.⁴ During those same decades, challenged and inspired by *IKTT*'s success, other silk workshops and galleries for high-quality silk have come into operation.⁵ Scholars have delved into the history of Cambodian silk textiles.⁶ The future of Cambodian silk continues to unfold.

Author's Research Report

Since 1970, the long Cambodian Civil War has caused serious damage to the traditional lifestyles of the Cambodian people. Typically, villagers answered my questions on silk-worm raising or use of natural dyes by saying "I stopped twenty-five years ago..." Despite



FIG. 1
Cambodia, showing the provinces included in or considered for field research. Map by Edna Jamandre.

the brutal interruption, villagers still keep their rich tradition and culture in their minds like a small light in the darkness. They are keen to produce traditional handweaving, although they certainly face poverty or economic instability.

This research was conducted for the United Nations Educational, Scientific and Cultural Organization (UNESCO) in Cambodia.⁷ My objective was to investigate the present situation of silk in Cambodia and to provide suggestions on ways of improving this sector. Four issues were of particular interest: the structure and quality of local silk fabric production, including the source of the silk yarn and use of natural and chemical dyes; the existing standards for rating the quality of locally produced silk fabric; the silk market in Cambodia, including the volume, types, quality, and price of silk being sold; and how to improve the quality of Cambodian silk, the skills of village-based producers, and the marketing system to expand markets abroad.

I conducted field research in three sessions during the dry season in 1995: 16–25 January, 15–28 February, and 22–29 March. The research covered markets and thirty-six villages in Phnom Penh and in the provinces of Kampot, Takeo, Kandal, Kampong Speu, Kampong Cham, Prey Veng, and Siem Reap (fig. 1).⁸

³ In 2004 Mr. Morimoto received a Rolex Award for Enterprise, the first of many international recognitions. <https://www.rolex.org/rolex-awards/cultural-heritage/kikuo-morimoto> (Ed.).

⁴ Morimoto 1998, 2008a, 2008b.

⁵ Srey 2017.

⁶ For example, Gittinger and Lefferts 1992; Green 2003, 2004, 2007, 2008; Peycam et al. 2004; Siyonn 2012.

⁷ The author is responsible for the choice and presentation of the facts contained in this work and for the opinions expressed

therein, which are not necessarily those of UNESCO and do not commit the organization (MK).

⁸ For place names, this report uses the English-based spelling used in the map issued by UNTAC (United Nations Transitional Authority

in Cambodia) in 1993. When the name was not included on the UNTAC map, other available maps were consulted (MK). Romanization of all Khmer proper names and technical terms follows the original text (Ed.).



FIG. 2
Pedan, Cambodia, before
1985. The Textile Museum
1985.19.1, gift of Marianne
Wilding-White.

Although I initially included Battambang and Banteay Meanchey provinces in my plan, fighting between government troops and Khmer Rouge guerrillas ruled out those visits.

I collected most of the data firsthand in the field. Dupaigne's *Distribution of Traditional Weaving in Cambodia* served as a guide for initial planning of the field research, although much of its information proved to be outdated.⁹ Other available secondary data provided background for looking at Cambodian silk from a broader perspective, both historically and geographically. The comparison of Cambodian silk fabric production with that of Northeast Thailand is based upon my personal experience of thirteen years working with silk producers in the latter region.

I interviewed silk dealers in markets and shops; middlemen; villagers engaged in sericulture, dyeing, or weaving; and government and non-governmental organization (NGO) staff in some districts. Mr. Nop Sothea translated and facilitated the interviews. During interviews with villagers, we approached the eldest women first because they had the most knowledge of traditional silk production. In many cases, the interviews became group events as fellow weavers from nearby households

joined in. Altogether, we interviewed fifty-six weavers, whose ages ranged from over eighty to under forty.¹⁰

Types of Silk Fabric in Cambodia

Cambodian silk fabrics can be divided into three main groups according to usage as well as dyeing and weaving techniques.

The first group, *sampot hol*, is distinguished by use of weft ikat technique and weft-faced twill weave. Ikat, called *chong kiet* in the Khmer language, involves the binding of partial sections of the weft yarn with fiber for resist dyeing that creates patterns on the yarn before weaving. This category includes *pedan*, traditional five-color *sampot hol*, *sampot hol por*, *sampot hol kaban*, and *sampot hol ktong*.

The second group consists of plain-colored twill weave fabrics collectively called *sampot pamung*. They include *pamung*, *chorabap*, *rabak*, *chorchung*, *anlounh*, *kaneiv*, and *bantok*.

Historically, silk fabrics from these two groups were worn exclusively by members of the royal family or upper class. Although evidence is lacking, the weaving techniques may have been restricted to members of certain families or communities who

⁹ Dupaigne 1980 (MK); Dupaigne 2004 (Ed.).

¹⁰ The age ranges were 80–89 (1 person), 70–79 (5

persons), 60–69 (13 persons), 50–59 (12 persons), 40–49 (11

persons), and under 39 (14 persons) (MK).

were specially appointed to serve the royal family. This practice is known in other kingdoms such as the Ryukyu kingdom in the fifteenth century and Java in the seventeenth century.¹¹

The third group of Cambodian textiles includes those used for daily wear by commoners. The *sarong*, *kroma*, and undyed white cloth come under this category. Fabrics in this group are available in both silk and cotton.

Sampot hol

Sampot means “wrapped skirt,” while *hol* means “ikat.” The *sampot hol* demands special and sophisticated ikat techniques in order to achieve the refined texture and imagery representing the finest Cambodian textile art. Masterpieces are found in museums around the world and in private collections.¹²

The origin of ikat technology in Cambodia is uncertain, although stone bas-reliefs on monuments of the Angkor kingdom (802–1430) represent costumes with floral motifs or geometrical border patterns resembling the Indian double ikat silk textile called *patola*. *Patola* was an important item in the flourishing maritime trade that conveyed aspects of Indian culture to Southeast Asia.¹³ Imported Indian textiles reached the Angkor kingdom by the thirteenth century.¹⁴ Whereas *sampot hol* structure is weft-faced twill weave, *patola* is plain weave.

Pedan

The *pedan* is used as a wall ornament for religious ceremonies or marriages (fig. 2). Ikat-rendered pictorial motifs include temples, the Buddha, monks, heavenly beings (*apsaras*), elephants, lions, and serpents (*nagas*)—all with Buddhist connotations.

One well-known *pedan* weaver lives in Phnom Penh. Master weaver Leav Sa Em possesses traditional ikat techniques and creates his own original works.¹⁵ He also provides training for the UNESCO silk-weaving project. A woman weaver works as an instructor at a workshop run by an NGO called Khemara. Both weavers come from Takeo province. Although few in number, some skilled weavers in Takeo province are still able to make this special type of ikat.

Traditional five-color sampot hol

Most traditional Cambodian ikat uses three basic colors—yellow, red, and black (brown). More complicated patterns may add blue and green, but there are never more than five colors. Originally these colors were obtained from natural dyes. More than 200 patterns combining the three to five basic colors can be identified on traditional *sampot hol* (fig. 3). The designs are never traced on paper but are tied directly onto the weft yarn from memory.

The *sampot hol* fabric has a “double” length of 360 centimeters and a width of 90 centimeters.

FIG. 3
Sampot hol, Cambodia, early 20th century. The Textile Museum 64.2, acquired by George Hewitt Myers in 1931.



11 Okamura 1988; Desai 1988 (MK).

12 Gittinger and Lefferts 1992; Suntory Bijutsukan 1993 (MK).

13 Ishii and Sakurai 1985 (MK).

14 Zhou 2007, p. 50 (Ed.).

15 Master weaver Leav Sa Em (d. 2003, also spelled Liv Saem [Peycam et. al. 2004, pp. 51–57] and Lev Sa Em

[Green 2008, pp. 148, 157 n. 1]) may represent an old Khmer model of male dominance in court-based crafts workshops, in contrast to the

broader association of household-based textile production with women. See also Green 2003, pp. 46, 88 (Ed.).

FIG. 4
Sampot hol por, Cambodia,
 circa 2006. This textile, sewn
 to wear as a tubular skirt, has
 been hemmed. Collection of
 Cornelia Bagg Srey.
 Photograph by Lang Srey.



FIG. 5
Pamung, Cambodia, circa
 2016. Turquoise warp, yellow
 weft. Collection of Cornelia
 Bagg Srey. Photograph by
 Lang Srey.



The design has three parts: the main body, the upper and lower borders, and the two striped end pieces. All patterns are composed from small units of ikat-tied dots, with four weft yarns per dot. Many *sampot hol* fabrics have been produced recently, but they are not the same as the older ones. They lack border or end piece designs, and some have only the main body and a lower border.

My research confirmed that *sampot hol* are produced in Bati, Prey Kabas, and Samron districts in Takeo province; Sithor Kandal district in Prey Veng province; and several Cham villages in Kampong Cham province.

Sampot hol por

Por means “color” in Khmer. This name is used in the market to refer to the new chemical colors that have a brighter tone than the natural dyes of the traditional five-color *sampot hol* (fig. 4). Popular colors are violet, fresh green, and coral pink. The patterns are simpler. Good market demand for *sampot hol por* has continued for the last four to five years. They are produced in the same areas as the traditional *sampot hol*.

Sampot hol kaban

The *sampot hol kaban* holds special meaning for villagers. Women normally use *sampot hol*, but this particular textile is worn by men. A bride weaves it and offers it to her husband-to-be on the morning of their wedding for him to wear in the ceremony.

The biggest difference between the *sampot hol* and the *sampot hol kaban* appears in the end piece. The *sampot hol* end piece is narrow and has thin stripes, but that of the *sampot hol kaban* is much wider and has intricate geometrical and floral patterns. Floral motifs and geometrical lattice patterns are used on the main body and borders as well. A high level of ikat skill is required to produce a fine piece of *kaban*.

Chong kaban describes the manner of wearing a *sampot hol kaban*. In Khmer, *chong* means “wrapping” and *kaban* denotes a double length (360 centimeters) of *sampot* (skirt).¹⁶ The double-length fabric is wrapped around the body at the waist; the ends are twisted at the front, then passed between the legs and tucked into the waist at the back.

¹⁶ Thai and Lao people use the term *chong kabeng* (MK).

Sampot Pamung

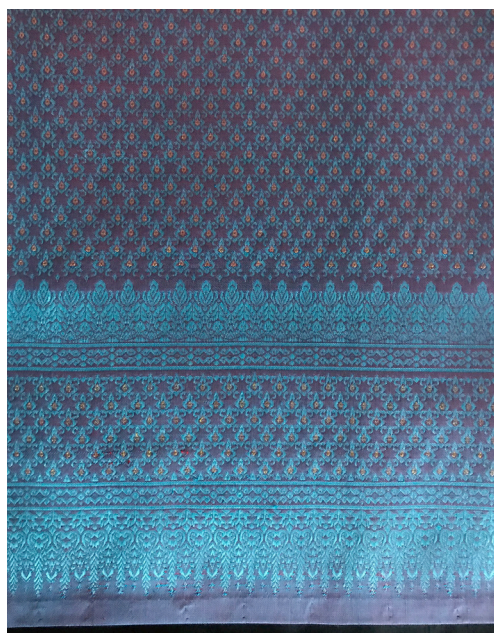
The *sampot pamung* is woven as weft-faced twill with three string heddles, like the *hol*, but it is ornamented with supplementary-weft patterns instead of ikat. Names for different types of *sampot pamung* designate the position of supplementary-weft patterns and the presence of stripes in the ground weave. Most supplementary-weft pattern textiles are woven in Kandal province.

Pamung

Yarns of different colors are used for the warp and weft for weaving a *pamung* (fig. 5). The woven fabric has a distinctive luster like a beetle wing.

Chorabap

The most luxurious fabric woven in present-day Cambodia is *chorabap* (fig. 6). Supplementary-weft patterns of floral and geometric motifs, woven with gold or silver thread, are scattered throughout the twill-weave base. As many as twenty-two string heddles may be employed for complex patterns. The fabric is thicker than other types. The *chorabap* is used for weddings and other special ceremonies. Demand is increasing in the local market. Only two villages now make *chorabap*: Prek Takov and Prek Thaong, both located in Khsach Kandal district, Kandal province, near Phnom Penh.



Rabak

Rabak is similar in design to *chorabap*, but instead of metallic yards for the supplementary-weft patterns, *rabak* uses colored silk yarn. Because the metallic yarns make *chorabap* very delicate and it cannot be washed frequently, it is only worn on special occasions. Easier to care for, the *rabak* was used in the past for daily wear by people of high status. *Rabak* is produced in the same area as *chorabap*. One woman in Angkor Chey district, Kampot province, claimed that she could weave *rabak*.

Chorchung

Chor means "pattern"; *chung* means "the bottom of a skirt." *Chorchung* is distinguished by a patterned band at the lower edge of the fabric, made using supplementary-weft patterning with silver thread on a twill weave base (fig. 7). The bands are between 10 and 15 centimeters wide. Most patterns are geometrical or plant motifs. One weaver told me that the patterns came from the *pha sin* wrapped skirt woven and worn in Laos. (Recently cheap synthetic fiber *pha sin* imported from Laos have become available in Phnom Penh markets and are more popular than the Cambodian *chorchung*.) Weavers in Muk Kampoul and Khsach Kandal districts, Kandal province, learned the patterns from Prek Thaong villagers (Khsach Kandal district) between ten and thirty years ago.

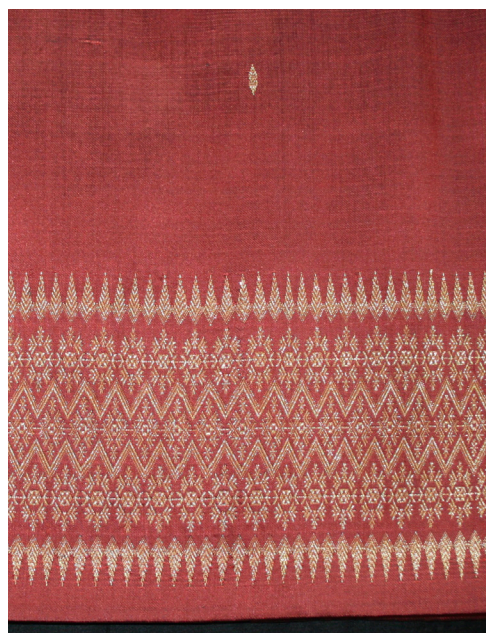


FIG. 6
Chorabap, Cambodia,
Kandal province, circa 2007.
Collection of Cornelia Bagg
Srey. Photograph by Cornelia
Bagg Srey.

FIG. 7
Chorchung, Cambodia, circa
2000. Collection of Cornelia
Bagg Srey. Photograph by
Lang Srey.

FIG. 8
Anlounh, Cambodia, circa
 2003. Collection of Cornelia
 Bagg Srey. Photograph by
 Cornelia Bagg Srey.

FIG. 9 (opposite)
Bantok, Cambodia, circa
 1960. Collection of Cornelia
 Bagg Srey. Photograph by
 Cornelia Bagg Srey.



Anlounh

Anlounh means “stripes,” and the fabric is distinguished by 5-millimeter stripes of two colors. Silk and cotton *anlounh* are available (fig. 8). An *anlounh* with a *chorchung* band at the lower edge is called a *pamung anlounh chorchung*. Within my research area, the *anlounh* was woven in Prek Ampil village, Khsach Kandal district, Kandal province.

Kaneiv

Kaneiv uses ikat-dyed weft yarn without aligning the patterns, instead scattering colors randomly. Three ikat-dyed yarns are twisted together into one thread to be used as the weft. The three-ply thread is woven into a twill base to produce an intricate mixture of colors. This colorful base is usually combined with a *chorchung* hem band and called a *kaneiv chorchung*, which is a luxury item.

Bantok

Bantok uses the supplementary-weft technique to weave small (about 1 centimeter) motifs repeatedly across the fabric (fig. 9). The pattern comprises a set of small dots forming a square. The dotted squares are woven at 20 centimeter intervals. Recently markets in Phnom Penh sell fabrics with small ikat motifs called “new design” *bantok*. A *bantok* with a *chorchung* is called a *sampot pamung bantok chorchung*.

Fabrics for Daily Wear

Sarong and *kroma* are everyday fabrics for ordinary people. While other fabrics have evolved for specific uses by members of the royal family or high society, these plain-weave textiles maintain traditional Khmer weaving styles. Many women in farming households still weave *sarong* or *kroma* using silk or cotton yarn.



FIG. 11 (near right)
Kroma, Cambodia, circa 2006. Silk. Collection of Cornelia Bagg Srey. Photograph by Cornelia Bagg Srey.

FIG. 12 (far right)
Kroma, Cambodia, circa 2016. Cotton. Collection of Cornelia Bagg Srey. Photograph by Cornelia Bagg Srey.

Sarong

Along with the plain colored *pamung*, the *sarong* is the fabric most commonly worn as a *sampot* in Cambodia. The *sarong* can be divided into three types according to pattern. The first type, *sarong sor*, has a plaid pattern like madras, with wide double stripes alternating with thin lines (fig. 10). White (*sor*) and another color are used for the wide stripes, while yellow, red, and black are commonly used for the thin lines. These fabrics are produced in Takeo, Kampong Cham, and Kandal provinces.

The second type is known to villagers as *sarong krola smock* or *sarong krola dom at*. It is distinguished by the *sarong krola phnom srok* pattern, a plaid with green and red double stripes. It is woven in Kampot and Kampong Speu provinces. Villagers in Banteay Meanchey province and other west Cambodian provinces also make a similar *sarong*.

The third type of *sarong* is worn by Muslims and is woven mostly by Cham villagers in Kampong Cham province. It is often made with silk warp and cotton weft, which recalls the *ikat mashru* of India, where religious laws forbade orthodox Muslim men from wearing pure silk garments.¹⁷ Many plaid patterns incorporate slender weft stripes spaced about 20 centimeters apart.

FIG. 10
Sarong sor, Cambodia, circa 2003. Collection of Cornelia Bagg Srey. Photograph by Cornelia Bagg Srey.



Kroma

Every Khmer person owns at least one *kroma* (figs. 11 and 12). Both men and women use it for multiple purposes—as a towel, for covering the head, wearing around the hips, or wrapping things.¹⁸ Although silk *kroma* are made, most are woven of cotton. There are two basic types of *kroma* patterns: the small lattice *krola mou* and the double striped *krola plu* (*krola* means “pattern” in Khmer). The most common colors are red and white or blue and white, but other color combinations also appear. The *kroma* was woven in all the areas covered by this research.

Blankets and mosquito nets

Many villagers said they used to weave blankets and mosquito nets, but this practice seems to have disappeared with changes in lifestyle. Although I found mosquito nets in the market, all the villagers surveyed in this study had stopped production two to three years ago.

Villagers of Kampong Siem district, Kampong Cham province, still produce twill-woven blankets, combining second-hand acrylic or wool yarn taken from old fabrics for the weft and synthetic yarn for the warp. Middlemen organize the production and supply yarn.

¹⁷ Desai 1988 (MK).

¹⁸ The *pha khaaw maa* woven

by Lao and Khmer people living in Northeast Thailand is quite

similar to *kroma*. It is used for the same purposes, but only by

men. Its lattice patterns are bigger in scale (MK).

Circumstances of Silk Production by Province

Kandal Province

Kandal province surrounds Phnom Penh. The Tonle Sap and Mekong Rivers run through the northern part of the province before converging at Phnom Penh, below which the stream separates again into the Mekong and Basak Rivers. These rivers and their tributaries bracket most of southern Kandal province and flow on through southeast Vietnam, creating the vast Mekong delta.

Silk and cotton production brought prosperity to this region during French colonial times after 1868. A 1937 map printed in France shows that silk and cotton were grown in the region.¹⁹ During the past forty years, however, cultivation of silk and cotton has died out. I met an old man (78 years old) living in Khoh Dach village, Muk Kandal district, who said he remembered cultivation of cotton in the area forty years ago. A man (75 years old) of Bak Kheng village had the same memory. A woman (72 years old) living in Kien Kliyang village had woven a *kroma* from cotton yarn she spun herself when she was sixteen years old (1940). Recently Kien Kliyang village became part of Phnom Penh. In adjoining Khoh Dach village, only one person (age 78) remembered seeing silkworm raising about sixty years earlier, around 1935.

Kean Svay district

Chulai Amphol village, in Kean Svay district, is just 10 kilometers away from Phnom Penh, towards the southeast on Road 1, and it is semi-urban rather than rural. Some well-to-do households do not have looms; their members raise fruit trees on the bank of the Mekong River, go to work in Phnom Penh, or run their own businesses. These households are exceptional, however, and about half of the 600 households have looms. Most have more than two; some even have five or six. They are not traditional looms but flying-shuttle looms (*khai kon tra* in Khmer) or semi-automatic stepping weaving machines (*khai*

macin). These modern looms were introduced to the village over forty years ago.

One household had two semi-automatic stepping weaving machines on the ground beneath the raised house. Ik Cyantu (35 years old) said that when she was young these machines had been used to weave cotton *kroma* and mosquito nets. She had never woven silk. The current price for a new machine is US\$230. Using the two machines, this household produces 500 pieces of *kroma* monthly and sells them at US\$0.64 each, yielding a US\$320 monthly gross income. The family does not have any other sources of income. Ik Cyantu told us that in the past a family owning two machines was able to lead a comfortable life. Since the price of cotton yarn has increased from US\$3.20 to \$4.40 per kilogram, however, supporting a family has become difficult.

Another house in the same village had two flying-shuttle looms. Em Reurn (52 years old) uses one loom, which her late husband made; her daughter uses the other. This family earns income from weaving only. Each woman can weave ten pieces a day, which totals over 200 pieces a month. They produce three patterns of *kroma*. Two years ago, they stopped weaving mosquito nets because they became increasingly difficult to sell.

In this village situated near Phnom Penh with its large market, villagers have taken up weaving as their sole occupation. In the future, it will be important for the weavers to increase production and to obtain cheaper raw materials.

Muk Kampoul district

Khoh Dach Island is located 10 kilometers north of Phnom Penh on Road 6A, which runs along the Mekong River. The island is 8 kilometers long and 2 kilometers wide. Traditional hand weaving is found on the east side of the island; residents on the west bank do not weave. In Khoh Dach village, nearly all houses have traditional looms, which are 4 meters in length. Most houses have two or three looms. The women weave *chorchung*. The looms have twelve cotton

¹⁹ Service géographique de l'Indochine, March 1937 (MK).

string heddles—three for the twill weave structure and nine for the supplementary weft. Up to eighteen heddles are used for more complicated patterns. The foot pedals have been restructured into a set of three frames, which differ in width but are uniformly 1.5 meters long. The small boat-shaped shuttle comes in two sizes, a shorter one (20 centimeters) for supplementary-weft patterns and a longer one (24 centimeters) for the twill base.

Village women also weave other fabrics throughout the year, such as *sarong* and plain-color *pamung*. Men normally fish or work in Phnom Penh, but some help weave. Joey Nat (48 years old), who was born in the village, started weaving *chorchung* ten years ago after learning the skills in Prek Thaong village (Khsach Kandal district), located on the opposite side of the Mekong River. So Sap (48 years old) acquired weaving skills from the same village fifteen years ago. Prior to that, women in Khoh Dach village wove only a plain solid-color cloth called *sampot liet*.

The villagers in this area go through middlemen to obtain their silk yarn and sell their finished products. They purchase 2 kilograms of silk yarn at US\$56–57 (February 1995) and sell their *chorchung* at US\$16–20 per 360-centimeter *kaban*. As one weaver produces six to eight pieces a month, the monthly sales proceeds are about US\$96–160.

Before 1970, villagers used yellow silk yarn. They had also used Japanese silk. Presently they only use chemical dyes, whereas before 1970 they used natural dyes such as lac (*leak Khmer*) bought from Kratie province. Sok Pom (78 years old), a native of this island, recalled that forty years ago the area opposite the island had prospered with cotton cultivation. He also remembered seeing villagers raising silkworms when he was about fifteen years old (in 1932).

Khsach Kandal district

After crossing the “Japan Bridge” from Phnom Penh over the Tonle Sap River, going another two hundred meters on Road 6A, and turning right into

a narrow road, I reached a small ferry port. The ferry can accommodate just one car at a time. On the east bank of the Mekong River, I turned right to head south into Lvea Em district, only to find the road cut off, so I turned north towards Khsach Kandal district.

In the first village I came to there was no sign of any weaving going on. In the next village, Prek Bonkong, half of the households were weaving. As was the case for many other weaving villages in the survey, the villagers fell broadly into three groups in relation to their economic status. Those in the first group live in thatched-wall houses and own farmland of around 0.14 hectare, while those in the second group live in wood-board houses with about 0.8 hectare of farmland. The last group lives in wood-board houses but owns no farmland and instead specializes in weaving. Villagers living in wood-board houses had a few pieces of extra silk fabric on hand, while those in thatched-wall houses had only the unfinished fabric on the loom and no extra stock of finished products.

Son Kon (48 years old) lives in a thatched-wall house and uses 0.135 hectare of farmland to grow bananas and vegetables. Her family has five members. She weaves five pieces of *chorchung* per month and sells them to a middleman for US\$26 apiece. Whenever she is in urgent need of cash, she sells directly in the market in Phnom Penh, but because the dealers know she is desperate she can get at most US\$25. Her mother taught her to weave when she was sixteen years old. At that time, the villagers wove only cotton *kroma* and mosquito nets. Later on she learned how to weave *chorchung* from a villager in adjacent Prek Thaong village.

Further north along the bank of the Mekong River is Prek Takov village. Ninety percent of the households own at least one loom; some have more than two. The looms in this village have a distinct characteristic. Whereas traditional looms seen elsewhere have inclining posts to support the warp beam, the posts used here are upright. People in

Prek Takov village weave *chorchung*, *chorabap*, and *rabak*—all with supplementary-weft patterns. They also produce *bantok*.

Long Ourn (57 years old) has two looms, which she shares with her daughter. Weaving is her main source of income, but she also farms and fishes. She began weaving at the age of sixteen after learning from someone in another village. She does not recall any cotton or silkworm production in the village. After marrying at age twenty and raising six children, she resumed weaving around 1970 at age thirty-two, only to be interrupted by the war. Around 1980 she could start again. Five years ago, her son-in-law made a new loom for her daughter. The two looms now sit side-by-side on the ground underneath her raised house.

Middlemen market both raw materials and finished products. A 2 kilogram package of Vietnamese silk yarn, enough for ten to twelve pieces of *chorchung*, costs US\$56 (February 1995). The previous year's price was US\$48. Gold and silver thread for supplementary-weft patterns costs US\$3.20 per 10-centimeter roll, which is enough for six pieces of *chorchung*. A *chorchung* is sold at US\$26.

Adjacent to Prek Takov village is Prek Thaong village, which has the appearance of a town rather than a rural village. A market is located near the wharf on the bank of the Mekong, and cast-iron lamp posts along the main road reflect former prosperity. This village is the center of weaving in this region and is famous for its luxurious *chorabap*. Every household owns at least two looms. The village is quiet because all the weavers concentrate totally on their looms when weaving. The middlemen also live in the village.

Two kilometers further north lies Prek Ampil village. It is situated across from Khoh Dach Island and has many thatched-wall houses. Until six months ago, the villagers wove cotton *anlounh* with a *chorchung* lower border. Every weaver produced thirty pieces (180 × 90 centimeters) per month all year round, selling them to middlemen at US\$3.20

per piece. With the rise in cotton yarn prices, however, villagers have gradually ceased production because it is difficult to make a profit. Mop Reth (53 years old) was weaving a striped cotton *anlounh* at the time of my visit, but she said it would be the last piece she would make under present market conditions.

Chea Sao (71 years old) remembers cultivation and hand spinning of cotton throughout the village forty years ago. Production gradually slowed over the years up until 1975, when it ceased totally.

All the weaving villages in Khsach Kandal district use chemical dyes. Even villagers in their seventies cannot recall using or seeing natural dyes. This district has inherited high skills in traditional Cambodian weaving. At the same time, proximity to Phnom Penh brought in modern chemical dyes at a very early stage.

Takeo Province

Takeo province is located south of Phnom Penh, and it is possible to come and go in a day. The province is part of the Phnom Penh metropolitan commercial zone. Takeo and Kampong Cham provinces are the two most famous weaving areas in Cambodia. This research surveyed Samrong, Prey Kabas, Bati, and Treang districts but found no weaving activities in Treang.

Prey Kabas and Samrong districts

Although Takeo town is the administrative center of Takeo province, no shops there sell yarn or woven products. The center of weaving and silk trading is at Saiwa market in Prey Kabas district, where Vietnamese silk yarn and woven silk fabrics are sold.

To reach the district's weaving villages, I turned east at Thnol To Teng market onto Road 2. Many weaving villages line the 20-kilometer stretch of road between Samrong district town (2 kilometers from Thnol To Teng market) and Prey Kabas district town.²⁰ Ninety percent of the households in Saiwa and Ampil Kanlek villages were found to have traditional looms. Some houses had more than one loom.

²⁰ The villages of Samrong, Sla Kanlek, Kandal, Trapeang

Sdok, Ampil, and Krachang are situated in Samrong district.

Chumrou, Saiwa, Ampil Kanlek, Trapeang Svay, and Reussey

Thmey villages are located in Prey Kabas district (MK).

The *sampot hol por* is the product most commonly seen. Its weft-faced twill weave structure is woven with three heddles. The looms are 4 meters long. The 35-centimeter long torpedo-shaped shuttle called the *tral weng* has a bamboo body with a bullet-shaped head made of hard wood or water buffalo horn.

One Sla Kanlek villager explained that she originally wove *sarong* but switched to *sampot hol por* a few years ago because of the higher profits. She learned the process from another villager.

Bati district

Several weaving villages are situated on both sides of Road 2 near the Cham Bak market in Bati district. Coming down from Phnom Penh and turning right after passing the market near the district hospital, I came to Ta Nok and Tro Pen Krosan villages. The villagers weave silk *sarong* and *kroma*. Middlemen come to the villages every Sunday to provide silk yarn, pick up woven fabrics, and pay for the labor. One middleman, originally from this village, has been in the silk trading business for fifteen years.

Turning left from Road 2 at Cham Bak market and driving 5 kilometers, I crossed a low hill and reached Ta Nop and Pey villages. Ninety percent of the households have looms. Some houses have added one or two looms within the past few years. The families appear better off economically than in many other weaving villages I visited. Whereas weavers in poorer villages usually have on hand only the fabric on the loom, here villagers have extra stock in their homes, part of which they use themselves. These villages have an advantage in that they are located near Phnom Penh and middlemen visit frequently. They also have a choice of selling directly at markets in both Saiwa and Phnom Penh. Thus they have more bargaining power. The income generated from weaving is considerable.

Further down the road that leads to Prey Kabas town, more villages have preserved a high level of traditional weaving techniques. Many kinds

of *sampot hol* and *pedan* are made. One villager kept a *sampot hol kaban* that her husband had worn at their wedding. Her mother had woven it because at that time she was not sufficiently skilled.

People in this area weave year round except for some fifteen days during the rainy season, when they grow rice. Apart from rice, weaving is the only income source.

Kampot Province

Southern Angkor Chey district

On the western border of Takeo province lies Kampot province. Angkor Chey district is at the northeast end of the province. Tani town used to be a famous center of sericulture and weaving until twenty-five years ago,²¹ but only a few people continue to produce silk fabrics. This province lies outside the Phnom Penh metropolitan commercial zone and commercial activity is subdued compared to neighboring Takeo province. The scene of many horse-drawn wagons at the morning market in Tani town is reminiscent of the old days.

Daum Doung village is about 10 kilometers from Tani town, beyond a range of hills. Villagers recall that until twenty-five years ago all households owned looms. Presently, in the 572 households in Daum Doung and neighboring Cyarap villages, only fourteen looms remain. Until recently, however, some villagers raised the traditional variety of yellow silk worm for household consumption. Unfortunately they ceased production this year and no eggs remain. One villager had to stop production because her daughter was seriously ill and she could not do the work alone. A sericulture promotion project would be necessary to revive the traditional yellow silk variety.

Women in this area weave *kroma*, *sarong*, and *pamung* but not *sampot hol*. There are two types of *kroma* patterns: the *krola smock* with a small red and green lattice pattern and the *krola phnom srok* with yellow double stripes added to the red and green lattice pattern. Different colors are used for the weft and warp yarns for *pamung*.

²¹ Dupaigne 1980 (MK).

Villagers in Kampot province grow rainfed rice once a year. Weaving has been a longstanding activity for the women in the dry season and their products are used within the household. Only occasionally, when in urgent need of cash or rice, do they sell fabrics at the market or to other villagers.

One weaver at Daum Doung village explained that she had just started weaving a cotton *sarong* the previous day, right after finishing the harvest. She could not afford to buy silk yarn and even for the cotton yarn she had to borrow money from neighbors. Another house had a loom without a beater. The owner admitted having difficulty weaving with just the reed, but she could not afford to purchase a new beater. Financial constraints were apparent. All ten villagers who gathered for the interview expressed their wish to resume weaving if only they had the capital to invest in looms and yarn.

Northern Angkor Chey district

To the west of Tani town, a range of low hills called the Sen Han mountains runs north-south. Takaor village is situated on the western side of these hills. Villagers produce yellow silk yarn. During the six months of the rainy season, Ouch Mom (68 years old) raises four batches of silkworms for her own use. This yields 2 to 3 kilograms of silk yarn, which she weaves into fabric. She is thinking of stopping silk production because it is difficult to exchange the product for cash or rice. The silk yarn that she produced had a beautiful touch and she was surprised to learn that it would sell at US\$22 per kilogram at Saiwa market in Takeo province. These villagers have never had contact with markets outside the locality and upon hearing of the market potential they showed interest in continuing their silk activities.

The villagers normally weave plain-color silk *pamung* and *sarong* and cotton *kroma*. Rath Hoy (31 years old) can weave a *rabak* pattern using seven heddles. She said her late mother had been able to weave many different *rabak* patterns. She had a piece of *rabak* that she claimed only she could weave and for which others would place orders.

The yarn used in this area is dyed with chemicals. Until three years ago Toch Thon (52 years old) from the adjacent village, Angkcheay, raised lac insects to produce sticklac for dyeing. He used two hundred-year-old *dam trang* trees (*Ficus altissima* Blume) in front of his house to raise the insects.

Villagers mentioned silkworm raising and weaving activities in neighboring Bateay Meas district, but time constraints prevented me from visiting the area.

Kampong Cham Province

Kampong in Khmer means “village beside a port.” The Cham ethnic group had its own kingdom, centered in Vietnam, in the past. The provincial town of Kampong Cham is about 100 kilometers from Phnom Penh towards the northeast, reached after two and a half hours by boat along the winding Mekong river.

Kan Means district

The district center is Peam Chikang, located on the right bank of the Mekong 22 kilometers downstream from Kampong Cham town. The district chief explained the overall situation of weaving activities in the district. According to him, a few households are weaving *kroma* in Sadau village about 35 kilometers to the west. Another 100 households are engaged in weaving in two villages to the east on the way to Kampong Cham town. Apparently it was safe to travel because fifty Khmer Rouge soldiers had surrendered a month earlier. Therefore I targeted the villages to the east and took the road back to Kampong Cham.

I found no weaving villages until reaching Roka Koy 1 village, where I saw cotton *kroma* and *sarong* on looms. Tang Cham (73 years old) has been weaving year round and can produce five pieces of *kroma* per day. A middleman buys them at US\$0.60 per piece, but since the price rise for cotton yarn, she has incurred losses and is thinking of quitting weaving. She has never woven silk fabrics.

Mom Dap (58 years old) of Roka Koy 2 village is the wife of the former village headman. She

and her daughters use three looms situated under her raised house. Her husband made the bamboo-frame looms. She has never woven silk and for two years she has been weaving plain cotton *sarong* and *kroma* for Muslims. She can earn US\$0.16 (400 riel) for a *sarong*, higher than ordinary fabrics, which fetch US\$0.06. She obtains cotton yarn and sells her finished products through middlemen.

One-fifth of the 126 households in this village are engaged in weaving. The former village headman said the situation had been unchanged for fifteen years, but that weavers who purchased cotton yarn directly from markets were starting to refrain from weaving due to the rise in price. Those who obtained yarn through middlemen managed to continue their activities because the middlemen paid the labor cost. The middlemen have cut costs of production by dyeing the yarn themselves.

Kampong Siem district

Kompong Krobai village is a Muslim Cham village located next to Roka Koy village. Half of the 92 households in this village have looms, among which 20 households weave silk. The villagers can weave more than twenty patterns of *sampot hol*. Taros Saramas (40 years old) weaves six single-size pieces (180 centimeters long) each month, which she sells at a unit price of US\$12. She occasionally weaves Muslim *sarong* as well. She remembers being unable to weave during the Pol Pot era (1975–1979). She follows the traditional method of tie-dyeing, using banana fiber to bind the yarn. She displayed the magnificent *konto* *kronggao* or peacock tail pattern, which was popular in the Muslim community.

Soi Set (38 years old) lives in Chamker Samseup village. Her loom is on the second floor of the house. She makes twill-weave blankets (1.2 x 2.2 meters) of various patterns using four heddles. Synthetic yarn is used for the warp while recycled yarn from old wool or acrylic cloth is used for the weft. She can weave two pieces a day, for which the middlemen offer US\$2.60 each. She weaves

throughout the year, but she also engages in other economic activities such as rice farming, and palm sugar and tobacco leaf trading.

Tieng Sare (54 years old) is the middleman for the weavers and lives in the village. He serves more than thirty weavers, to whom he pays US\$0.06 (150 riel) per piece of *kroma* for the weaving. He dyes cotton yarn before supplying it, using chemical dyes that he obtains in 5- or 10-kilogram bulk—considerably larger and cheaper than the 10-gram packets costing US\$0.24 (600 riel) that villagers use. He also has an advantage over individual weavers in that he can purchase cotton yarn in larger quantities and thus at cheaper prices. Mr. Tieng was a Kampong Cham provincial officer until 1970, after which he worked in Saigon until the end of the Vietnam War. During the Pol Pot era he was forced to move around many labor camps. He settled in Chaker Samseup village in 1979 and started his present business.

The villagers of Kho Kor 1 village weave cotton *kroma* and *sarong*. They have never woven silk. Until last year, about 90 of the 100 households in the village were engaged in weaving, but many quit this year due to increased cotton yarn costs. Keing Surin (54 years old) was still weaving but was uncertain regarding the future. She receives her cotton yarn from Tieng Sare and weaves four pieces a day. She acquired her weaving skills from her mother from the age of fifteen and has been weaving since, despite temporary interruptions. Her forty-year experience may come to an end if the labor cost continues to decline and she cannot afford to purchase yarn directly from the markets.

Kho Sotin district

Kho Sotin district is located along the Mekong River, across from Kampong Cham town. Kho Sotin Island lies in the middle of the river further downstream. Many old kapok trees grow on this island. I crossed the river on a small ferry from the island to Chihe village.

In Moha Leap village, next to Chihe village along the Tonle Toch River, 80 percent of the

households have looms. I saw no weaving activities because the villagers were busy harvesting tobacco. During the weaving season, they make cotton *kroma*; they do not weave silk. Tong Phon (60 years old) can weave five or six *kroma* a day. She used to buy her own cotton until last year; due to the price rise, she started to go through the middleman in the village. She explained that the price of cotton yarn rose from US\$1.60 in 1993 to US\$2.80 in 1994 and US\$4 in 1995.

Along the Tonle Toch river below Moha Leap village, several villages on both sides of the river have looms producing cotton *kroma*. I eventually reached Love village, across from Prey Veng province. Love village consists of about 260 households, of which 90 percent have looms and 20 percent possess more than two. This village also has a resident middleman. The weavers buy cotton yarn from the middleman at US\$4 per kilogram, which is sufficient for up to ten *kroma*. They sell back a *kroma* at US\$1.60, giving a profit of about US\$0.16. Lonh Son (62 years old) can weave five pieces in a day. Her elder brother dyes the cotton yarn. Her family also has a 1 hectare tobacco farm, which generates US\$80 income a year.

Kroch Chmar district

Kroch Chmar district can be reached by boat along the Mekong from Kampong Cham town heading towards Kratie province. During the hour and a half journey, I saw many rubber plantations. Rubber was brought into the country by the French in 1910. Kampong Cham province has the country's oldest rubber plantation, dating to 1920, and contains 95 percent of the country's estimated 50,000 hectares of rubber planted land.²²

There is a noticeable difference in the scenery between Takeo and Kampong Cham provinces, particularly in the dry season. The landscape in Takeo is dry and arid during January and February, whereas Kampong Cham has fertile land covered with tobacco, rubber, and kapok and abundant water from the Mekong River. This prosperous area supplies

Phnom Penh with most of its agricultural crops. It is an ideal place to start a silkworm raising project.

An International Labor Organization worker in Kampong Cham informed me that silkworms were being raised by a villager in Kroch Chmar district. The villager lived in Saraong village, a quiet place located 3 kilometers east of the river landing. I expected to find cultivation of traditional yellow cocoons, but to my disappointment Chin Huch (45 years old) was producing white Vietnamese cocoons. She explained that she started raising silkworms during the Pol Pot era. She was forced to work on Treng Island, a traditional silk production spot further down the Mekong. They were raising the traditional yellow breed then. After she was freed from forced labor in 1979, she returned to Saraong. She never thought of getting involved in sericulture until two years ago, when she decided to allocate part of her 1.5 hectare banana orchard to growing mulberry trees. She started to raise Vietnamese silkworm eggs last year but encountered many problems. Late last year she invited an expert from Vietnam to give her technical guidance for forty days. The expert had also provided her hand reeling machine.

Traditionally mulberry trees are grown near the house, but Huch raises them on land about 2 kilometers away from her home. She produces 40 kilograms of cocoons per cycle and manages ten cycles per year. One kilogram of yarn is drawn from 10 kilograms of cocoons. A middleman from Prek Cangkran village in Prey Veng province approached her this year to buy her yarn at US\$50 per 2-kilogram bulk. She rejected the offer, preferring to stock more yarn before selling. She is the only one in the village who raises silkworms at the moment. Other villagers are interested but first want to see whether Huch succeeds.

Mulberry trees are hardier than other plants in a dry environment. The trees are commonly planted in the arid northeast of Thailand, where farmers traditionally raised silk for home consumption. With the recent increase in demand for silk inside and outside

²² Cambodia Business News, 23 Feb 1995 (MK).

Thailand and a growing market for silk yarn, mulberries are being planted on fertile land for higher yields.

Over forty years ago, Cambodia produced its own local variety of silk in Takeo, Kampot, and other provinces, but it presently relies heavily on imported silk yarn. As Cambodia regains peace and people are able to improve their lives, demand for silk is rising noticeably. The data collected during this research estimates at least 60 tons of silk consumption in 1994. Despite the steady increase in silk demand, domestic production of silk yarn is declining. Meanwhile the price of imported silk is steadily rising. Silk production within Cambodia should be promoted.

Even a single villager in a remote area like Kroch Chmar is able to draw resources from Vietnam to start producing silk. This area does not have any tradition of sericulture or weaving. The area has high potential because the land is fertile and the farmers have experience in growing various kinds of cash crops. Market demand for silk yarn is sufficient. All that is needed is the skill to produce yarn with stable quality.

Thirteen kilometers down the Mekong from Saraong village is Trea village. This large Muslim Cham community holds about 1,000 households. Seventy percent of them, mostly in Trea 1, engage in weaving. Weaving is their main occupation because they do not have any farmland. Until last year they grew vegetables and rice in a nearby village, but because the Khmer Rouge controlled the land they had to pay tax of US\$4 each, so they stopped producing there. Apart from weaving, the only other income-generating alternative for them is fishing in the Mekong.

Their main products are *sarong* and *kroma* in the styles worn by Muslims, using silk warp and silk and cotton weft. Because of frequent exchange among the Trea villagers and fellow Muslims in Malaysia, Malaysia is also a good market for their *sarongs*. The Muslim *sarong* has a distinct 20-centimeter strip of thin vertical stripes in the middle of the plaid pattern that covers the entire cloth. Weavers go to Phnom Penh to purchase silk yarn. They buy the bark of the *bror hoot* tree (*Cambogia gutta*) from

Kratie province to dye yellow color but use chemicals for the other colors.

Prey Veng Province

Sithor Kandal District

Sithor Kandal district lies across the river from Love village in Kho Sotin district, Kampong Cham province. Here I found the long-sought answer to a question that kept me puzzled during the survey of Kampong Cham. In the Phnom Penh markets I had seen beautiful *sampot hol*, which the shop owners claimed came from Kampong Cham province. Visiting the weaving villages in Kampong Cham, however, I did not come across the kind and quantity of *sampot hol* that I saw in Phnom Penh.

I entered Prek Sandai village by crossing a wooden bridge over the Tonle Toch River from Love village. Sandai market is a small market located in the village. I was surprised to find some twenty shops selling gold. In front of these gold shops, small glass cases displayed gold accessories, bundles of 500 riel notes, and *sampot hol*. The shops, which appear to have been built within the past few years, serve as middlemen for silk fabrics. The *sampot hol* are sent to markets in Phnom Penh by way of Kampong Cham. It is understandable that some shop owners in Phnom Penh mistake the source of the products.

Next to Prek Sandai village lies Prek Changkran village. Nearly all of the 203 households have looms; more than half possess two to three. Neighboring Prek Tapok village is smaller, with 100 households, but over half engage in weaving. I estimated a total of 400 looms in these three villages specializing in the weaving of *sampot hol*. About five single-size *sampot hol* are woven on one loom per day. This means that approximately 2,000 pieces are produced in a month. Since one piece is sold at US\$16, an estimated US\$32,000 in cash circulates every month. This would explain why gold shops are so numerous in Sandai market.

An estimated 500 kilograms of silk yarn per month would be needed at the present

production rate. This is equal to about 6.6 tons per year. Middlemen who live in the villages play a major role in supplying silk yarn as well as marketing the woven products. They supplied yellow silk yarn until 1950, but since 1970 they have seen only white Vietnamese silk.

Two types of looms were found in the villages. One is the traditional 4-meter type; the other, only 3.5 meters long, is more compact and easily assembled.

Natural dyes such as lac and *bror hoot* apparently were used before 1970. One Prek Changkran villager said that until three years ago she had used indigo purchased from Kandal province. Upon visiting the village in Kandal province that she claimed to be her source of indigo, however, we found that indigo production had ceased twenty-five years ago.

Silk weaving in this village has developed to the extent that households have started to specialize in certain stages of the process. Some focus on ikat dyeing while others weave. We did not find this kind of division of labor in other weaving villages. The people of Love village say this is because the weavers of Sithor Kandal district own no farmland and must weave full time.

Kampong Speu Province

Phnom Sruoch District

In Kampong Speu province I surveyed the villages of Kreng Tathe and Kaptouk in Phnom Sruoch district. Staff of a local NGO, Khemara, guided us there. Although formally established as an NGO in August 1992, Khemara has been in operation since 1990.²³ The head office, training center, and craft sales shop are located in Phnom Penh. Khemara specializes in development projects for women. Since 1993, it has been working with women in four villages in the Prey Ramdourl commune of Phnom Sruoch district. In 1995, a training center equipped with looms and sewing machines opened in Kaptouk village, one of the four project villages.

A total of 838 households belong to the seven villages forming Prey Ramdourl commune.

One primary school with four teachers serves the whole commune. Although 700 children are enrolled there, only 300 attend school on a regular basis. The villagers grow rainfed rice once a year during the rainy season, while in the dry season they catch fish in the river or weave.

Sim Phan (58 years old) still maintains this mode of life. In the rainy season, she raises a local variety of silkworm and reels yellow silk yarn from the cocoons. She produces 2 kilograms of yarn each year, dyeing and weaving the yarn during the dry season. We saw red and green yarn, dyed with chemical colors, on the bamboo swift frame. She also showed us some undyed yarn, which was very smooth and had a beautiful luster. High-quality Cambodian silk is still produced by some villagers.

Phan's mother, Peach (88 years old), claimed she never used natural dyes, but when I inquired about black colored yarn, she said that she still uses *mak klua*, the fruit of the ebony tree (*Diospyros mollis* Griff.), as the dye. Apparently *mak klua* black is too common for her (and many others I met in other villages) to regard as something special to be signified by "natural dye." It has long been used for villagers' clothing to be worn at home or in the fields. In the process of *mak klua* dyeing, she dyes not the yarn but the woven white cloth. She weaves the undyed silk cloth with a twill weave, using three heddles. It has a simple supplementary-weft pattern called *kouth kehau*, meaning "spiral shell" (fig. 13). I did not come across white silk cloth in any other area visited for research. Apparently it is customary here to use white silk for a variety of purposes, such as wrapping the deceased, dyeing yellow for monks'



FIG. 13
Kouth kehau weave pattern, Cambodia. Collection of Cornelia Bagg Srey. Photograph by Cornelia Bagg Srey.

robes, or dyeing black for daily wear. Khmer and Lao people living in Northeast Thailand also wear this kind of cloth and use it for religious ceremonies, and they also use *mak klua* for black dye.

Villagers in this area also weave *kroma*, *sarong*, and *pamung*. All the households raised silkworms until forty years ago, but production has revived only recently with the assistance of Khemara. At present twenty-eight households engage in sericulture.

Siem Reap Province

Most of my research was conducted in southeastern Cambodia surrounding Phnom Penh. The only area I was able to visit elsewhere was Siem Reap province, which is renowned for the Angkor ruins.

Two silk shops targeting tourists operated in Siem Reap town, and another ten shops for local people were located in the Old market. All had been in business for about four or five years. Middlemen from Takeo, Kampong Cham, Kandal, and Prey Veng provinces brought silk products to the shops. Cotton *kroma* produced locally on semi-automatic weaving machines were also available at 1,700 riel (US\$0.68) per piece.

In Angkor Park I met a Buddhist nun (67 years old) who was born and raised here. She said she wove *kroma*, *sarong*, and white *pamung* from the age of twenty until 1975. A UNESCO staff member also born in this locality recalls his mother's weaving *sampot hol* and dyeing with the *kee lee* (*Cudrania javanensis*) tree.

In the silk shops in Siem Reap town, I noticed *sarong* costing US\$15 and was told they came from Phnom Srok district, 80 kilometers west of Siem Reap town. This district is now part of Banteay Meanchey province, which was separated from Battambang province and set up as a new province in 1987. Although I intended to survey Phnom Srok district, I had to abandon the plan because government troops were still fighting Khmer Rouge guerillas.

The *sarong* from Phnom Srok has a distinct characteristic in the weft yarn, which is made up of

two yarns of different colors twisted together. This technique resembles the *sarong sor* of southeast Cambodia. The difference is that for the *sarong sor* the two-colored yarn is used only in a narrow band, whereas in the Phnom Srok *sarong* it is used for half of the total weft pattern. The overall design of this *sarong* is a plaid pattern with double stripes, similar to what Kampot villagers refer to as the *krola phnom srok*. *Sarong* woven in Northeast Thailand have larger plaid patterns using twisted two-color yarn for the entire weft.

Les Chantiers Khmers Sericulture Project

Sixteen kilometers west of Siem Riep town along Road 6 is Puork district. A provincial vocational training center operated until recently as a United Nations High Commissioner for Refugees (UNHCR) resettlement center for people repatriated from the refugee camps along the Thai border. In 1992 a French NGO initiated a sericulture and weaving project called Les Chantiers-Ecoles de Formation Professionnelle (CEFP) at the training center to help refugees earn a living. Hok Son (64 years old) is in charge of training 100 villagers. The center consists of five wooden buildings—two for silkworm rearing, one for reeling, one for weaving, and one for the trainees' dormitory. A concrete building is under construction.

The project began by improving the dry soil and planting 5,500 mulberry trees over an area of 2 hectares. Trainees care for the mulberries, which although still small are in good condition. Two French experts provided technical assistance in improving traditional silkworm raising methods. They tried to utilize traditional techniques rather than modernize the production totally. They have already managed to raise nineteen cycles of silkworms.

Fully grown silkworms are transferred to bundles of meter-long dead branches, where they make cocoons. This method is seen among the Khmer in Northeast Thailand. Villagers in Kampot

province place the worms on fresh leafy branches attached to bamboo sticks.

The silk yarn reeling equipment is like that used in Northeast Thailand and is slightly smaller than equipment used in Kampot and Kampong Speu provinces. The looms at this center are basically the same as traditional Khmer looms. Ten looms are ready, and carpenters are making more. Six trainers are presently training thirty-nine villagers in weaving *kroma*, *sarong*, *rabak*, *chorchung*, and *anlounh*. They have not yet taught the skills of weaving *sampot hol*.

The project plans to expand the mulberry plot and to import high-quality silk yarn from China or Korea, because the quality of the Vietnamese silk yarn available in the local markets is not satisfactory. Having completed the first phase of the project in the past three years, they are entering the next stage, which focuses on product development and marketing. This project serves as a model for silk promotion in Cambodia and the development of the second phase should be watched carefully.²⁴

The Present Situation of Sericulture in Cambodia

Prior to 1970, many villages in Cambodia raised silkworms, reeled the yarn, and wove it into fine traditional fabrics. Except for Kampot and Kampong Speu provinces, most weavers in Cambodia now use silk yarn imported from Vietnam.

In Takeo province, villagers of Sla Kanlek village, Samrong district, recalled that the yellow silk yarn they used to buy until ten years ago had a distinct shine and was easier to weave than the Vietnamese imports. One woman (70 years old) remembered buying yellow yarn from Saiwa market more than ten years ago at US\$1.20 per kilogram.

Sericulture was carried out in Prey Kabas and Bati districts as well. The owner of a silk shop in Saiwa market who used to trade silk yarn and fabrics from village to village remembers that villagers raised local-variety silkworms throughout the area around 1960. Silk yarn from Japan and elsewhere started

entering the market at that time. Eventually villagers abandoned their sericulture activities, choosing to weave all year round because of the considerable profits. Silk shops opened in Saiwa market at this time.

In Angkor Chey district, Kampot province, small quantities of traditional silk are raised and woven for household consumption in the villages of Daum Doung, Cyarap, Ang Kcheay, and Takaor. During the rainy season villagers produce three or four cycles of silkworms, which amounts to 2 kilograms of silk yarn. They weave the yarn in the dry season from January to May. Apparently all households were engaged in sericulture until 1970.

In Kampong Speu province, some villagers in Phnom Sruoch and Baset districts still raise silkworms for household consumption.

The sericulture project of Les Chantiers Khmers in Siem Reap province successfully promotes production of yellow silk yarn. The scale of production is the largest I saw in the survey and it is well organized. The development of similar projects would be important in terms of reviving traditional Cambodian silk yarn. In Battambang province, I was told, native villagers and repatriated refugees are producing silk with the support of a sericulture promotion project funded by the government of Canada through UNESCO. Similar to the Chantiers Khmers project, it started just last year.

The Present Situation of Silk Yarn in Cambodia

The survey revealed that nearly all the silk yarn marketed in Cambodia is imported from Vietnam. The most common white Vietnamese silk yarn occurs in four types depending upon the thickness, which ranges from 50 to 170 denier. Yellow silk yarn also comes from Vietnam. Both white and yellow yarn are reeled with fully or semi-automatic machines. The traditional Cambodian yarn reeled by hand has more shine than either Vietnamese yarn. One silk shop near the Central market in Phnom Penh imports silk yarn and owns a separate warehouse to store it. At the village level, middlemen play a major role in marketing yarn. Saiwa

²⁴ This project developed into the Angkor Silk Farm,

a component of Artisans Angkor, now a major supplier

of commercially-produced silk in Cambodia (Ed.).

market in Takeo province was the only place outside Phnom Penh where I found a shop selling silk yarn.

Villagers in Takeo province obtain their yarn supply from middlemen, shops in Saiwa market, and markets in Phnom Penh. The price of silk yarn has been rising rapidly over the past few years, from US\$16 per kilogram in 1993 to US\$22 in 1994, US\$28 in January 1995, and US\$32 at the end of March 1995.²⁵ A silk yarn shop in Saiwa market sells 5 to 20 kilograms of silk yarn a day, or about 4,000 kilograms annually.

The Present Situation of Dyes in Cambodia

Chemical dyes were used in nearly all of the surveyed area. Villagers generally use chemical dyes produced in Thailand and sold in 10-gram bags. There are problems with the durability of the dyed fabrics—the colors wash out very easily. The cause may lie with the dyeing method. We observed that villagers soak ikat-tied silk yarn in the dye mixture without boiling it. Then they swing the yarn like a whip and strike it against a large wooden tub several times, after which they soak it again in the dye. This may represent an old technique, perhaps used for indigo dyeing in order to help the dye permeate the yarn, but it may not be appropriate for chemical dyes. Deeper investigation would uncover the causes.

Traditional Cambodian silk fabric was dyed with natural dyes. The three basic colors were blue from indigo, yellow from the *bror hoot* tree, and red from lac. Cotton fabrics were dyed black from *mak klua*. Among the surveyed villages, Trea village in Kampong Cham province still used natural dye from the *bror hoot* tree. In most cases, however, they use chemicals to re-dye the cloth after a first round using natural dyes.

In many villages, people had abandoned natural dyeing at some point in the recent past. Lac dyeing took place on Khoh Dach Island in Kandal province until 1970. On the west bank of the Mekong across from that island, “indigo mud” was produced

for dyeing purposes until 1967. Until twenty years ago, *bror hoot* and lac were used for dyeing in Ta Nop and Pey villages in Bati district and Krachang and Sla Kanlek villages in Samrong district. Lac dyeing was seen until recently in Angkor Chey district, Kampot province. In Takeo province, natural dyeing had existed in Reussey Thmey, Tra Peang Svay, and Amphil Kanlek villages in Prey Kabas district but ceased forty years ago. The villagers of Tro Pen and Ta Nok villages in that province do not have any experience in natural dyeing.

Red dye—Lac

Leak is the Khmer word for lac, but Cambodian people presently use it to refer to chemical dye. Natural *leak* is now distinguished from modern chemicals as *leak Khmer* or *leak krormor*.

The material used for dyeing is the nest of the lac insect (*Laccifer lacca* Kerr). The size of a lac insect is only 1.2–1.6 millimeters. Groups of these insects live in nests that they make on trees. During the breeding periods in July and December, the insects move to new branches to make new nests. Villagers immediately collect the old nests and dry them to form what is called sticklac. Sticklac has been used as dye from ancient times and more recently as raw material for industrial products. In 1929, sticklac exports from French Indochina (Vietnam, Laos, and Cambodia) amounted to 1,300 tons.²⁶

This research found that villagers in Angkor Chey district, Kampot province, raised lac insects until three years ago. One villager explained that lac raising had been a family occupation since his father's time. The profits from selling sticklac had built his house. In front of the house stood two hundred-year-old *dam trang* trees (*Ficus altissima* Blume) that were used for the insects. He stopped raising lac three years ago because the insects died off completely. He explained the local belief that people raising lac should not touch a corpse, eat hot rice, burn the forest, or kill snakes. After he helped organize the

²⁵ International Labor Organization, Cambodia, 1995 (MK).

²⁶ Takahashi 1949 (MK).

funeral for his aunt and came in contact with her body, the lac insects began to die. I noticed that other trees surrounding the lac-raising trees had been cut down. The area used to be a small forest. It is known that lac insects cannot live in temperatures above 42 degrees centigrade, and the environmental change from cutting down the forest is probably related to the death of the lac insects.

Villagers in Prey Kabas district, Takeo province, explained how to use sticklac. They ground the stick and put the powder into warm water together with alum and the leaf or fruit of the tamarind tree, then used that liquid for dyeing.

Villagers of Bati district, Takeo province, used the *cham poo* fruit (annatto, *Bixa orellana* Linn) to obtain red color.

I found sticklac in a shop in Orussey market in Phnom Penh. The shop owner said it came from Kratie province. The price was US\$6.80 per kilogram. The sticklac was used for polishing furniture and other wooden objects rather than for dyeing.

Yellow dye—*bror hoot*

The bark of the *bror hoot* tree (*Cambogia gutta*) is still used to dye yellow in Trea village, Kampong Cham province. Villagers from Kratie province supply the bark and sell it at US\$1.20 per kilogram. Some villages in Takeo province still practice *bror hoot* dyeing, but the number of trees has declined from the time when they were seen throughout the province. I also noticed this tree in a village in Kampot province.

According to villagers of Prey Kabas district, Takeo province, the dyeing liquid is made by crushing *bror hoot* bark and putting it into boiling water together with alum.

The shop in Orussey market stopped selling *bror hoot* bark two years ago due to a drop in demand. The bark was supplied from Siem Reap province. In the villages of Surin province in Thailand, across the border from Siem Reap, *bror hoot* is called *peaker* and is still used for yellow dyes.

The heart wood of the *knorl* or jackfruit tree is used for yellow in Kampot province. In Siem Reap province, yellow color is obtained from the wood of the *kee lee* tree (*Cudrania javanensis*).

Blue dye—indigo

Cleih is the Khmer word for indigo dyeing. A villager (66 years old) in Bati district in Takeo province did indigo dyeing about forty years ago, but she had to confer with her friends to recall the whole process for me. According to them, there are many kinds of indigo. The indigo they used to grow is the shrub (*Indigofera tinctoria* Linn) called *trom* in Khmer. The *trom* leaves are fermented and become a blue muddy paste, which is called *mor*. The *mor* is diluted with water in a small earthenware pot and mixed with lime, ash water from burnt kapok seed pods, banana fruit, and palm sugar. This mixture is fermented for another five to ten days. The whole process from *trom* to *mor* is called *cleih*. The dark blue color is referred to as *kியូ ច្បា* and the light blue as *កិយូ កូច្បា*.

In Bak Kheng village on the outskirts of Phnom Penh, indigo dyeing was seen until 1970. The village lies 10 kilometers north of the capital, between the Mekong River and Road 6. New indigo seeds had to be bought from Kampong Thom province every year because the color would not be as good if seed from the same plant was used repeatedly. The seeds were planted in December, after the annual Mekong floodwaters inundated the fields. In four months the shrubs grew to 1 meter high. At that point villagers collected about 25 kilograms of the shrubs and soaked them in water in a large wooden tub (2 meters diameter × 1.2 meters high) for about twelve hours. After removing the plant material, they stirred the liquid with a wooden stick, added 8 kilograms of lime produced from burnt shells, and allowed the liquid to rest for two hours. As the thick sludge sank to the bottom, they removed the clear water on top. The sludge was shifted to a smaller tub, and the process of removing the clear water was repeated. Finally, the remaining sludge was poured into a hole in the

ground and left for another day. The resultant paste, or *mor*, was taken out and kept in an earthenware pot until needed for dyeing.

Tim Peach (75 years old) said 25 kilograms of indigo shrubs were enough in 1967 to make enough *mor* for his own use and to sell in the market. At that time all the households in the village were producing *mor* and weaving *kroma*. He recalled that other provinces such as Kampong Thom and Kratie were also *mor* production sites.

Black Dye—*mak klua*

Cambodian people know two ways to obtain black from natural dyes. The first method, as seen in *sampot hol*, is to dye the yarn twice, once in red and the second time in blue. This results in a black or dark brown color. Another method is to use *mak klua* or ebony fruit. This is how cotton is dyed for making everyday clothing. In villages in Kampong Speu province, *mak klua* fruit is used to dye woven white silk fabric. The ripe fruit is collected, crushed, and put into water in a small earthenware pot. The fabric is soaked in the liquid for at least thirty minutes and dried under the sun. This process is repeated four times a day for ten days until the fabric becomes deep black.

Present Situation of Ikat in Cambodia

Sophisticated ikat dyeing techniques are at the heart of fine Cambodian silk fabrics. Traditional Cambodian ikat is weft ikat. The Khmer term for ikat is *chong kiet*, which means “tying strings.”²⁷

Banana fiber was used for tying the yarn, but recently plastic string has replaced it, as in Thailand. The traditional method is still used in some villages in Bati district. The “fiber banana” tree or *chach chhvie* is Manila hemp (*Musa textilis* Nee). The strong, water-resistant fiber, peeled from the outer layer

of the trunk and dried, is used to make ropes and fishing nets. The weaver tears off thin strips of fiber for binding the yarn. Use of banana fiber gives a soft touch to the dye colors, as there is some overlapping penetration, whereas plastic strings give sharp edges.

These examples describe places that still maintain traditional dyeing practices. Elsewhere, modern labor specialization has entered the villages, and some weavers are starting to skip the dyeing process. Cotton weavers in Keau Svay district, Kandal province, bought ready-dyed yarn from the market. Middlemen in Kompong Cham province buy yarn and dye it themselves before selling it on to the weavers. Some silk producers in Sithor Kandal district, Prey Veng province, specialize in dyeing while others only weave. Many villagers do not know how to dye.

Present Situation of Looms in Cambodia

Khmer people in Cambodia and Northeast Thailand refer to the loom as *khai*, while Thai and Lao call it *kee*.

Examples of the simplest loom can be seen in the weaving villages of Kampong Speu province. In front of the house, two 60-centimeter high poles are imbedded in the ground and another pair of poles, 40 centimeters high, is secured about 3 meters away. During the rainy season, when weaving activities cease, the poles remain in the ground. In the dry season, a warp beam is set into notches in the taller poles to roll up the cloth as it is woven. I saw similar looms in Khmer villages in Northeast Thailand about ten years ago. As the volume of weaving activities picked up, however, looms with a sturdier framework became more common.

Most of the weaving villages surveyed in this research used looms similar to those of the Khmer living in Northeast Thailand.²⁸ The loom consists of a

²⁷ Khmer living in Surin province, Thailand, refer to ikat as both *chong kiet* and *chong sin*, the latter a mix of Khmer and Lao terms. Thai people use the word *matmee*, also meaning “tying strings” (MK).

²⁸ In Surin province, Northeast Thailand, 70 percent of the

population is of Khmer origin, 20 percent Kuy, and 10 percent Lao. This differs from other northeastern provinces, where Lao are dominant (Srisawat 1991). Three types of traditional looms are found in Northeast Thailand. The frame of the Khmer Thai loom is 3–4 meters long and

has a beam that rolls up the warp yarn towards the rear part of the frame. The Kuy people, earlier residents of the area, use loom frames similar in structure, but the warp yarn stretches 10–15 meters before it is wound onto a beam set into a pair of poles stuck into the ground. Lao

looms are built as a rectangular frame 1.3 meters wide and high and 2 meters long. The warp yarn is stretched from the front beam to the rear beam, passed over the upper rear frame bar, brought forward, and tied to the upper front frame bar right over the weaver’s head (MK).

wooden frame 3–4 meters long and 1.3 meters wide, with a warp beam attached at the back. Variations of this kind of loom were seen in villages in Kandal province (except for Prek Takov and Prek Tavon villages) and in Kampong Cham province, with the exception of the Cham villages, where the poles that support the warp beam are stuck into the ground at a slant. The National Museum in Phnom Penh displays this type of loom.

Two types of shuttles are used in Cambodia. The torpedo-shaped shuttle used for ikat weaving is 35 centimeters long with a diameter of 2 centimeters, and one end is shaped like a bullet.²⁹ It is traditionally made of bamboo but plastic has become common recently. It is called the *trol dai* (“hand shuttle”) in Kampot province. People in Takeo province call it the *trol weng* (“long shuttle”). The National Museum displays a very old shuttle that may have been used in the Royal Palace. The bullet tip is made of ivory, while the shaft is decorated with inlaid shells and intricate traditional Khmer motifs drawn with black lacquer.

The second type of shuttle is called the *trol paka* (“pen shuttle”). It has the shape of a row boat (or a Parker pen, like its name) and is 22 centimeters long. It is used to weave supplementary-weft patterns on *sarong*, *pamung*, and *chorabap*. A smaller version of this shuttle is used when weaving with gold or silver thread. Weavers making *chorabap* use both types of shuttles, one for the twill weave ground and the other for the supplementary-weft motifs.

A thirteenth-century Chinese diplomat named Zhou Daguan recorded his observations of everyday life of the Khmer people during his sojourn in the Angkor capital. He noted that spinning and weaving were common activities and that a “long bamboo shuttle” was used.³⁰ The torpedo-shaped shuttle seems to have been in use in Cambodia for a long time, since it is used for weaving *kroma* and *sarong* in Kampot Speu and Kampot provinces, where much traditional Khmer weaving still survives. Possibly this shuttle form was introduced to Cambodia from India. The boat-shaped or pen-shaped shuttle, on the other

hand, is thought to be a newer type, probably introduced from Europe.

Present Situation of Silk Marketing in Cambodia

As the country’s largest center of consumption, Phnom Penh is as important for marketing woven fabrics as it is for accessing silk yarn and other raw materials. Shops usually place orders with village weavers for specific colors and designs. Middlemen specify colors and designs that are in high market demand.

Villagers in Kandal province sometimes sell their products themselves in Phnom Penh, but most of the time they rely on middlemen. Villagers of Bati district in Takeo province sell half their production directly and half through middlemen. The shops in Saiwa act as a wholesale center for the region and in turn sell 90 percent of the fabrics they purchase to shops in Phnom Penh. Shop owners said that a single shop handles some 200 pieces of fabric in a month, although the volume appears to be even greater.

For villagers of Kampong Cham province, famous for handwoven silk fabrics, middlemen are the sole channel for marketing their products. In most cases, middlemen living in the village sub-contract weavers. Under these circumstances, most of the cotton *kroma* weavers in the province have discontinued production, except for those who are hired by middlemen for US\$0.06 (150 riel) labor cost per piece. Weaving for that rate generates only US\$7.50 per month (5 pieces/day x 25 days/month). Only desperate villagers who have no alternative for earning a living can tolerate these conditions.

The situation in Angkor Chey district, Kampot province, is quite different. Because the volume of production is small, middlemen have started coming to the area only recently and their number is still limited. Villagers raise traditional yellow silk cocoons, so whenever they are short of silk yarn they purchase from neighbors. They also weave cotton cloth for which they buy cotton yarn from Tani town. The

²⁹ Khmer weavers in Surin province, Northeast Thailand,

use an oxbow-shaped shuttle 36 centimeters long,

very similar to that used by the Lao. It is called a *kasui*

in Thai (MK).

³⁰ Zhou 2007, p. 76 (Ed.).

cotton cloth is mainly for household use, but when necessary they sell it for cash or exchange it for rice with other villagers.

The example of Kho Kor village illustrates the impact of the increased price for cotton yarn on weaving *kroma*. In 1993, 1 kilogram of cotton yarn cost weavers US\$2.80. At present, it costs US\$5.20. Since ten *kroma* can be woven with this much yarn, the yarn cost per *kroma* shot up from US\$0.28 to \$0.52. In the Phnom Penh markets, the price of a *kroma* ranges from US\$ 0.80 to \$1.00. This includes the profit margins of both the middleman and the shop. Street peddlers are also seen with piles of *kroma* on their head. In any case, retail prices reflect the increase in raw material cost.

The same constraints apply for the silk market. An average *sampot hol* weaver produces five double-sized (360 cm) pieces per month at US\$12–24 per piece. Assuming a price of US\$20, the weaver would earn a gross monthly income of US\$100. As the cost of the silk yarn required is US\$40 (1.5 kilograms for 5 pieces), the net profit would be US\$60 a month. A recent increase in silk yarn prices has reduced the profit to US\$50 or even less. Middlemen pass on the higher yarn cost to the weavers but suppress the purchase price of the woven fabric. Weavers from Takeo province who receive yarn from middlemen as in-kind loans are paid very low prices for the woven fabric.

Marketing Outlets

The Central market area in Phnom Penh is the largest, with over forty shops selling silk fabrics; Toul Tom Pong market and Old market have about ten shops each. The market in Siem Reap town has ten shops, Kampong Cham town has eight shops, and Phnom Penh's Orussey market has just two shops. The retail price of a double size (360 centimeters) *sampot hol* ranges from US\$15–40 in the Central market. This is a reasonable price given the quality. Top quality pieces in Cambodia cost US\$220–550.³¹ The variation in price does reflect the difference in quality.

In the Toul Tom Pong market, some shops targeting foreigners sell old *sampot hol* pieces. The patterns are intricate compared to modern ones and show the superiority of traditional Cambodian handweaving. Antique fabrics are popular among foreigners and the number of shops selling such items seems to be on the increase. Prices range from US\$10 to \$100. The popularity of old silk fabrics also reflects the lack of high-quality contemporary weaving. If Cambodia expects more tourists and foreign residents in the future, it is important to improve the quality of its products. The same applies for markets abroad. Fine-quality Cambodian silk fabrics were exported to international markets in the past. There is potential for foreign demand provided traditional production skills are recovered.

The overall supply-demand relationship for silk fabrics in Cambodia seems to be favorable for producers at the moment. Many shops opened for business three or four years ago. Producers in many weaving villages have added one or two looms during the past two years. The sudden rise in demand for silk fabrics in the past few years reflects the UNTAC (United Nations Transitional Authority for Cambodia) effect on the economy. After more than two decades of conflict, Cambodia entered a new phase in October 1991 with the Paris Peace Agreements and the start of temporary administration by UNTAC. This also triggered a wave of new economic investment. Now UNTAC troops have departed. Owners of silk shops in the Central market say that foreigners constituted 50 percent of their customer base during the UNTAC period, but now they constitute just 20 percent. Growth of domestic demand is supported by Cambodian women who have resumed wearing traditional national costume, an indication of improved lives. Stability and steady economic growth are crucial for sustaining this demand.

Summary Observations

Silk yarn from Vietnam is used for the majority of handwoven fabrics produced in Cambodia. In order to restore traditional handwoven silk fabric production,

³¹ In neighboring Thailand, a common double-size piece would cost US\$60–200 (MK).

Areas of Sericulture Production	Characteristics of Areas Project Sponsors
Kompong Speu	Traditional silk production by several farmers Khemara Project
Kampot	On the verge of discontinuation
Siem Reap	Les Chantiers Khmers Project (three years' experience)
Battambang	UNESCO Project (less than one year's experience)
Banteay Meanchey	UNDP/OPS Cambodia Resettlement and Rehabilitation Programme (CAREERE)
Kampong Cham	Vietnamese silk production by one farmer Fertile soil Farmers experienced in growing cash crops

FIG. 14
Sericulture activities
in Cambodia.

it is essential to insure the supply of local varieties of silk yarn. We know that many villages engaged in sericulture until around 1970. Villagers described the quality, luster, and ease of use of traditional Cambodian yellow silk yarn.

According to my calculation based on about 700 looms in the seven villages that I visited in Takeo province, I estimate that weaving activities in this province use approximately 30 tons of silk yarn per year. Sericulture appears to be a promising activity for farmers to supplement their income.

I believe it is urgently necessary to set up production of local yellow silk yarn among farmers. I am convinced that it is more appropriate to set up sericulture in areas such as Kampot province, which has long experience in this field, than to introduce it in new places that lack basic know-how.

The price of imported silk yarn has been rising by 20 percent per year. Producing sufficient silk yarn in the country would restrain price speculation and stabilize the national silk market. Silk yarn price is an important factor not only for securing the national silk industry but also for competing in the international silk market.

Imported, low-quality silk yarn used for weaving *sampot hol*, the renowned textile of Cambodia, can be easily identified. This kind of silk yarn is suitable for production of other types of textiles but unacceptable for traditional fabrics, as it lacks luster and smoothness. I noticed a tendency among villagers to produce traditional silk fabrics using poor-quality yarn in order to meet an increasing local demand, but unfortunately this practice undermines the high technical achievements of the past. Circulation of most fabrics by middlemen creates difficulty in maintaining quality control and technical stability at the village level.

Middlemen play a major role in the marketing of handwoven fabrics in Cambodia. Individual weavers sell their products to middlemen who live in the villages or come from Phnom Penh. As the market mechanism becomes more prevalent, this practice may change. It would be desirable for village producers themselves to take control over their sales.

I learned that most of the people who embody traditional high skills in silk weaving are quite old. The organizations dealing with Cambodia silk

weaving need to establish—promptly and concretely—policies and strategies to restore and develop the activities of traditional high-quality silk weaving.

Recommendations for Future Development of Cambodian Silk

There is an urgent need to increase production of indigenous yellow silk yarn. The quality of the silk yarn links directly to the quality of the fabric. My research identified three main areas where sericulture activities are carried out, albeit on a very small scale (fig. 14). These locales may serve as bases for increasing production. Detailed analysis of the localities is required to determine effective methods of increasing production.

Research revealed that village silk fabric producers are in a disadvantaged position in marketing their own products. It is important to increase the bargaining power of silk producers to secure better returns for their yarn. In the present marketing system in rural areas, silk producers deal with middlemen individually and usually end up accepting whatever conditions they offer. Organizing producers' groups is one way of strengthening their position. This would enable marketing of yarn in larger quantities. Improving silk production techniques, setting up quality control standards, and improving the fundamental socio-economic status of the villagers are also necessary. Support from international organizations, governmental organizations, and NGOs may be needed to achieve this.

Enhancing the present level of dyeing and weaving skills would help preserve Cambodia's silk tradition as well as increase the market potential of its silk products. This should be dealt with as soon as possible, because the best traditional skills are in the hands of elderly specialists and need to be passed on to younger generations. Reviving natural dyeing skills would be significant. The color and texture of traditional naturally dyed Khmer silk are superb. A return

to natural dyes would give Cambodian silk fabrics added value and competitiveness in the world market. Natural dyes are also beneficial in the sense that they are good for the skin and can be used as medicine.

One means of accomplishing these goals would be to establish a weaving school that incorporates four components:

- 1 Collecting old handwoven silk fabrics to be used as models for learning the skills and designs of traditional weaving;
- 2 Providing the appropriate environment for experienced and skilled weavers to fully utilize their craftsmanship, as the ones who are capable of weaving the highest quality products;
- 3 Dividing the training courses into three levels of skills for beginner, intermediate, and advanced;
- 4 Setting up a shop to sell the products.

These components have to be integrated in order to be truly effective. A trainee who finishes the training course should be able to move on to producing and even be allowed to produce at home if necessary. The first and second components would be important resources in enhancing trainees' skills. Each training course should last one year: anything less would be insufficient for acquiring skills. The school should have its own marketing outlet and the trainees' products should be targeted for the market.

In other countries that support traditional weaving and crafts, similar institutions have already emerged to support development of the arts. In the case of Cambodia, where twenty-five years of war have interrupted this development, such an institution urgently needs to be established.

Acknowledgements

Louise Cort wishes to thank Cornelia Bagg Srey and Lang Srey for their generous help in providing images of varieties of Cambodian textiles.

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