

SARAWAK MUSEUM JOURNAL

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## The Forging of a Ritual Knife (Pendat) by Land Dayaks in Sarawak, Borneo, Cultural and Religious Background

by

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*For Nyisson and Najo with thanks for their hospitality and friendship.*

This paper describes the making of a ritual knife (*pendat*) in Karu, a village about 40 km south of Kuching. During cultural ceremonies the *pendat* lies on the pagan altar amongst the equipment and offerings which are needed for the ritual or is worn by the *tua gawai* (master of ceremonies, master of festivals) in its sheath at his hip. Land Dayaks used this tool alone for ritually taking heads. It has long since lost this purpose, but it is still regarded as a symbol of the strength of the community.

### *Description*

It is smaller than the common working knife (*parang*, a bush knife with a blade about 50 cm long). Unlike the latter it does not have a carved grip, but a small cap of wood or horn which is stuck on its proximal end can be considered to have derived from such a handle (the proximal end is that nearest to the body of the user). Projecting from either side of the grip is a round bar, forged from the same piece of metal. Metal rings can be soldered to the grip for decoration. On either side of the distal parts of the grip there is an incised design which is called *tanduk butan*—the coconut horn. The name originated from the hornshaped bud of the inflorescence of the coconut palm. As this design bears no resemblance to a horn, but is more fan-shaped, one can assume, it could be a phallic or an eye symbol. The people of the village could offer no explanation as to the significance of this design. Immediately next to the *tanduk butan* there is a hole in the grip. While the grip of an Iban ritual *parang* can be decorated only with the hair of a slain person, Land Dayaks can place any human hair in this hole. Hornbill feathers or coloured ribbons can be used to complete the decoration.

The blade of the *pendat* is at an obtuse angle to the grip, which is typical of all Land Dayak *parangs*. Both the cutting edge and the back of the blade—which is about 40 cm long—gets wider towards its tip. The cross-section of the blade is symmetrical.

There is an uneven "V"-shaped cut in the distal tip of the blade which is of great significance, because it is this which is the distinctive characteristic of the *pendat*. Each of the sides of the cut is made for one of two (normally) benevolent spirits named *tiriu* and *kamang*. These spirits inhabit the jungle on a hill named *darod baru*, less than a mile from the village. They are the spirits who give power to the *pendat* and confer the blessing or the curse that is attached to it.

Nyisson, the smith (*beran*), is the son of the master of ceremonies, *tua gawai*, who is said to be more than a hundred years old. He is one of the few people who still know all the old rites, and he often deputises for his father in ceremonies. He lives with his wife and his two sons Tambang and Najo (Tambang is a Malay word, being a generic term for "fare" on public transport. As there are only buses in the area concerned the word was translated to us as "busfare". But such names generally lose their former meaning when becoming a name. Nobody could give a meaning for the name Najo). There are two younger sisters, but they did not live in Nyisson's room, at least not during our presence. Tambang, aged 27, is still a bachelor. Najo, aged 25, is married, with two children. Najo's family lives together with his father in Nyisson's room.

*The forge and the religious objects associated with it.*

The forge stands on a hill which is separated from the village by a stream. There is only one building on the same side as the forge; a small house used for ceremonies and festivals. There is also a small tributary stream where people of the village come to fetch water. The ground-plan of the forge is rectangular (about  $6 \times 5$  m). The roof is pitched, and both roof and gables are covered with nipah palm. Below this the building is open on all sides so that a chimney is not necessary (Fig. 1). Just outside the forge is a water trough made from a part of a hollowed-out tree trunk resting on two posts. The trough is placed outside, because there it can catch sufficient rain water to keep it filled; thus the smith does not have to carry water himself. Inside, under the shelter of the roof, are two small altars. One is made from a length of bamboo, one end of which has been split in many places and then bent outwards to form the shape of a cone-like recipient. This is attached to the gable on the end of the building nearest to the village. The other altar is a square platter made from split bamboo, which hangs above the fire place, slightly to one side of the centre. These two types of altars are the ones most commonly found in the village. These particular altars are used very rarely, but at least once a year, on the occasion of the *gawai nye-beran* ("ny" being pronounced as in the Russian "njet").

This annual festival in the [unclear] and annuls the taboo on the [unclear] harvest (the so-called *gawai pa* later with music and feasts [unclear] weekend). Every fourth year a [unclear] but on the other three years [unclear] important feature of this ritual [unclear] severed from its body inside [unclear] either that the pig is slaughtered [unclear] consumed during a solemn fe [unclear] tradition at least 8 heads mus [unclear] a ritual *parang* may be made [unclear] years after the forge is built a [unclear]

It is not possible to reduce [unclear] Najo smiled at our foolish su [unclear] that the choice of a pig as a [unclear]

Lying on the ground in [unclear] an unhewn stone, which, judg [unclear] It is said to be unbreakable [unclear] and the spirits which bless th [unclear] even against attempts to brea [unclear] would take revenge on the c [unclear] same fate would befall anyon [unclear] the taboo is in force or do [unclear] annuls it.

The offering must be p [unclear] working there for the first ti [unclear] the forge on that day. The sa [unclear] and on all of the people w [unclear] that day. It is permissible fo [unclear] For example Nyisson made [unclear] work. It consisted always of [unclear] *baïd* and of a paste made [unclear] which is *binyuh*. It does no [unclear] remove the offering. In add [unclear] be made: Nyisson for exam [unclear]

The fireplace consists o [unclear] each about 15 cm in diamet [unclear] work is built up by placing [unclear] short sides. It is made se [unclear] close to each end where th [unclear] cut into the bottom of one [unclear]

This annual festival in the forge marks the end of the rice harvest, and annuls the taboo on the forge which has been in force during the harvest (the so-called *gawai padi*, the festival of the harvest, is held later with music and feasts with drinks. Nowadays it is held on a weekend). Every fourth year a pig is slaughtered for the *gawai nyeberan*, but on the other three years a chicken is deemed sufficient. The important feature of this ritual is that the head of the pig should be severed from its body inside the forge, and it is of no significance either that the pig is slaughtered nor that blood is spilt. The sacrifice is consumed during a solem feast. According to the prescription of tradition at least 8 heads must have been offered in the forge before a ritual *parang* may be made there. This cannot be sooner than 28 years after the forge is built and the first *gawai nyeberan* held.

It is not possible to reduce the time by making additional offerings. Najo smiled at our foolish suggestion that this might be so. He said that the choice of a pig as a sacrifice was determined by tradition.

Lying on the ground in one corner of the forge is a third altar, an unhewn stone, which, judging by its size, must weigh about 30 kg. It is said to be unbreakable and it is the intermediary between man and the spirits which bless the work done in the forge. It is protected even against attempts to break it by the fear that *tiriu* and *kamang* would take revenge on the offender by calling a curse on him. The same fate would befall anyone who should dare to use the forge while the taboo is in force or do so without performing the ritual which annuls it.

The offering must be placed on the stone by a person who is working there for the first time, and who is also the first one to use the forge on that day. The sacrifice brings a blessing on all of the work and on all of the people working in the forge for the first time on that day. It is permissible for an offering to be made more frequently. For example Nyisson made an offering every day before he started work. It consisted always of a betel-nut (*baï*), of a leaf from the tree *baïd* and of a paste made from lime and water snails; the name of which is *binyuh*. It does not matter if anybody, e.g. playing children remove the offering. In addition to this small personal offerings may be made: Nyisson for example always offers some of his tobacco.

The fireplace consists of a rectangular framework of tree trunks each about 15 cm in diameter, which is about 60 cm high. The framework is built up by placing logs alternately on the long sides and the short sides. It is made secure because every log has two notches close to each end where the long and short sides meet. The notches cut into the bottom of one beam fit firmly into those ones cut into

the top of the one below. By this means their weight is used to give them stability. This framework is filled with earth, on the top of which are the large stones which form the sides of the hearth. There are also two anvils and one simple bench on one of the short sides of the forge which is also used as a work bench. Each anvil is made from a tree stump on top of which is a round metal disc a good 5 cm thick. Its upper surface is rounded in the centre, and here are a number of holes each about 4 or 5 cm in diameter around the edge. These metal pieces each weighing at least 10 kg came from the dock in Kuching where an inhabitant of the village collected them several years ago.

#### Tools

The first of the tools we shall describe is the bellows. This consists of a wooden box and has a valve system which expells air both when the piston is pushed in and when it is pulled out again. We were told that the valves were made from leather flaps. A second bellows is kept within reach on the rafters of the forge. It can be taken down by someone who is standing on the fireplace. Nyisson used one big hammer, two tissels of different size and shape, one big file which was set into a shoe-shaped frame made of wood, a small three-sided file and a small, handy tool for raking the charcoal. There is also a provisional wooden grip for the *parang* while the smith is in the process of making it. He made both this grip and the shoe-like one for the big file himself (see below). The master has also a vice which he bought several years ago in Kuching. Everytime he needs it, he would carry it to the forge and nail it to the work bench.

Besides the offering and the tools the smith brings to work with him a towel which he uses periodically to wipe the sweat from his face. He has also two small tins in one of which is his tobacco found on sale everywhere. In the other one there are short lengths cut from the dried fronds of nipah palm, from which he rolls his own thin rather long cigarettes.

#### The performance of the work

Before Nyisson goes to the forge in the morning he puts his tools, the rawling, the original *pendat*, the offering, his tobacco and also the towel for the sweat into a basket which he carries on his back like a rucksack. No other preparations were necessary unless one counts his repeatedly contemplating the original *pendat*, sizing it up against the width of his own hand and the back of his thumb. On arrival at the forge he unpacks the tools he will need for the morning task. Then he hangs the towel in reach over a beam below the roof. After this he takes the tobacco, the offering, smears some of the snail

paste on the leaf and kneels down his small sacrifice. He also crumpled the leaf onto the stone. His kneeling is merely because the stone is on

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The remaining portion of t in a similar way. But this po crossing-section. Thereafter, pro

paste on the leaf and kneels down in front of the altar stone to bring his small sacrifice. He also crumbles some of the tobacco besides the leaf onto the stone. His kneeling down is not a religious act but is merely because the stone is on the ground.

Since the fire was used the day before, it is not necessary to kindle the fire anew. With the aid of the bellows, he and his son are able to quickly ignite the embers. To begin with he takes the old *pendat* out of the basket as well as the piece of flat iron, which serves as a work piece. He looks at both of these articles at first separately, than together, and once more assures himself of all the measurements.

Thereafter he sticks the flat iron into the coals and shoves a small heap of coals over the iron with the coal slide and thus heats its end. The flat iron has dimensions of approximately 5 mm thickness, a good 20 mm width and more than 1 m in length. This is sufficient raw material to make a second *parang*. Najo moves the bellows. Now, at the beginning of the task, he moves them faster than later on when the fire is red hot. In fact Najo accompanies his father especially on these work days, since he not only interprets for us, but also, a second man is necessary for some of the work stages. Najo, who himself does not forge, at least knows the slights of hand that are necessary for assistance.

Then the old man takes the flat iron out of the fire for the first time and begins to hammer. First he pounds on the narrow side, so that the flat iron will become narrower and thicker (fig. 2). He continues this procedure until the first 3 cm of the flat iron have gained a square shape as seen in the cross section (fig. 3). He only hits the broad side for corrections and in order to remove stuck-on crusts of charcoal. The end piece has the shape of a very pointed pyramid upon completion of the first operation (fig. 4). In order to achieve this effect, he first hits a gradation in small sections into the iron from both sides, when the gradation has reached its final shape he beats the next gradation and evens out these ledges. In between the iron is heated up again and again. During this time, Nyisson's left foot rests on the hearth while he stands on the ground with his right leg. At times he stares straight ahead beyond the forge into the bamboo bushes and appears to be concentrating on his next operation. Once he stops in the midst of his hammering, turns the iron, looks at it closely, and then thinks so long until it no longer glows. Then he puts it in the fire before he continues to work on it.

The remaining portion of the handle will be shortened by forging in a similar way. But this portion of the grip looks rectangular in crossing-section. Thereafter, proceeding from the anatomy of the future

user, the obtuse angle between blade and grip is forged in indication (fig. 5). This also requires many operations. Then he seizes a long file, the point of which is knife-shaped and beats a groove into the grip by holding the file vertically and then pounding the end of the file with the hammer (fig. 6). Najo holds the flat iron during this task. This groove will be chiseled from the proximal end (the side pointing towards the body of the future user) so that a notch is formed, and the split-off piece can be bent off in a right angle later, as a perpendicular cross-piece. Thereafter he takes a knife (about 20 cm long) and beats on its wide back in order to deepen the groove (fig. 7 and fig. 8). Both operations are carried out from both sides of the grip so that the grooves meet as closely as possible: a cleft results, and therefore a pointed triangular piece is missing from the grip (fig. 9). At this stage the old man again pauses, and looks at his so far achieved progress. Before he continues, he relaxes by watching his son attend the bellows. The same operation follows once more, but the second cleft is beaten in from the distal side so that both protruding pieces have a common symmetrical point situated around the middle of the handle. Then they are bent off to protrude at a right angle with a strong knife and the help of the hammer. Both cross-pieces being chiseled from the proximal end and the distal end of the work piece, have the purpose of distributing on the whole length the loss of mass of the grip by the production of the crosspieces, and so the handle remains, in order of magnitude, equally wide all over. In comparison to the original piece, both bars are too long, they are not round like that of the finished piece, instead in cross-section they are square. A slight waist-line, which is found later in the grip will not be filed in till the following days. Now he cuts the tips of the too long bars off. Since the shape of the grip suffered from the preceding operations the smith must perform correctional work in order to give the grip a rectangular shape again (fig. 10). The holes in the anvil are useful for this task, because only by lowering the bars into the holes can he fashion the grip edgewise without compressing or twisting the bars anew. Before both pieces were bent around, the old man had defined the depths of both clefts, so that the bars actually attained an exactly opposite position.

Up to this time Nyisson has smoked 3 or 4 nipah cigarettes, and in between he measured with his hand and his thumb and compared the *pendat* and the workpiece repeatedly. Very stereotype, he always uses pauses in order to grasp his sweat towel with which he first wipes his face, then his neck, finally hanging the towel with a little swing up under the rafter almost without looking.

From this point on, Nyisson begins forging the angle between the blade and the grip. He begins this task by producing the beginning of the blade. In between he once again estimates the proportions. When the angle is completed by the future *pendat*, he ends this work day. He spent somewhat more than 4 hours.

The next work day in the forge is spent on the magic stone. The offering is made on the stone, and Nyisson removes it to the offering there. Afterwards the smith turns the piece, which he turns slowly in his hands. Only then does he rake the fire and unpack his tools. For the observer, who is satisfied with the waist-line at the end of the blade, the aid of the sharp-edged back of the anvil is used. The edge in the waist-line by beating on the anvil. He lays the original piece and the new one on the anvil in order to check if the proportions are correct. Work on the angle between the grip and the blade operation appeared to the author as a question of slight corrections, but it took much time. Now he begins to work on the blade.

This requires much experience. The flat iron would become curved like a sickle. The cutting edge by pounding it flat. The smith nevertheless succeeds in straightening the iron, also the back without the backside. He compared the original and the new piece. He rupts his work on the blade and the grip. He cuts the cutting edge at its end. He beats the iron, in order to separate the *pendat* from the distal end of the blade (fig. 13). He removes the work-piece out of the forge and quenches the iron from both sides in the basin and letting it run down. He hammers and then tries to break off the blade. If this does not succeed, he heats the iron a second and then a third time. He turns the grooves, turns it around 180°, and continues until both parts finally break apart.

From this point on, Nyisson begins a new work phase, namely forging the angle between the blade and the grip into the tool (fig. 11). He begins this task by producing an indentation or waist-line at the beginning of the blade. In between when the iron is somewhat cooler, he once again estimates the proportions of the grip with his hand. When the angle is completed by pounding on the ulnar side of the future *pendat*, he ends this work and the first work day. Altogether we spent somewhat more than 4 hours in the forge.

The next work day in the forge again begins with the offering on the magic stone. The offering from the day before still lies on the stone, and Nyisson removes it unmindfully before he places today's offering there. Afterwards the smith occupies himself with the started piece, which he turns slowly in his hands, apparently contemplative. Only then does he rake the fire and pour in the charcoal as well as unpacking his tools. For the observer it now appears that he is not satisfied with the waist-line at the beginning of the blade. With the aid of the sharp-edged back of the strong knife, he presses a clean edge in the waist-line by beating on its sharp edge (fig. 12). Thereupon he lays the original piece and the half finished piece side by side in order to check if the proportions correspond. He also continues to work on the angle between the grip and the blade, even though this operation appeared to the authors to have been complete. It is only a question of slight corrections, therefore this task does not require much time. Now he begins to work on the essential blade.

This requires much experience and skill of the smith, since the flat iron would become curved like a saber if he would only thin the cutting edge by pounding it flat. After the work becomes crooked, he nevertheless succeeds in straightening not only the cutting edge but also the back without the backside becoming too thin (fig. 14). After he compared the original and the half-finished *pendat* anew, he interrupts his work on the blade and grasps the big file which has a short cutting edge at its end. He beats mutually facing grooves in the flat iron, in order to separate the *pendat* from the unworked part at the distal end of the blade (fig. 13). At this point he carries the heated work-piece out of the forge and over to the hollow tree trunk. Here he quenches the iron from both sides, by shoveling water with his hand from the basin and letting it run over the iron. He repeats this procedure and then tries to break off the surplus piece over the anvil. When this does not succeed, he heats the iron once again, and quenches it a second and then a third time. Now he can actually twist the iron at the grooves, turns it around 180°, and bends it back and forth repeatedly, until both parts finally break apart.

At this stage it is noticeable that the half-finished blade is about one quarter shorter than the original model. He fastens a provisional wooden handle around the grip of the *pendat* and then again lays his workpiece into the fire (fig. 15). This provisional handle allows the smith to take a hold of the downright short hot workpiece. It consists of a piece of branch or tree trunk, which had been corded by a vine. It therefore exhibits a swung bulge and is handier. Furthermore it possesses better mechanical properties, namely the greater hardness of the wood and therefore greater heat resistance.

Now the master begins to lengthen and widen the blade in the course of which the former flat iron becomes thinner all around. Even during this work the blade always becomes crooked. However he corrects this from time to time after heating it in the next work phase. At this moment a strong breeze blows the leaf with the nut from the magic stone. This does not signify a bad omen: Nyisson says, he is sure, that *tiriu* and *kamang* had long since seen and accepted the offering.

Finally the blade reaches the length of the original. With the aid of the big file he strikes again with the hammer on the end of the blade. Thus he beats two new grooves in the end of the *pendat* in such a way that a triangular sector can be levered out (fig. 16). During this work Najo holds the work-piece for him, since he needs both hands for the hammer and the file. After heating it four times the preparation is so far developed that he carries the *pendat* over to the magic stone, where he can then chip off this section. It would not be allowed that he already chipped off this sector by accident on the anvil. He would then have discounted this work, since he has to complete this operation on the magic stone in honour of both spirits. Here the magic stone is both anvil and altar. Only the second time does the section break out of the end of the blade (fig. 17). Nyisson is pleased and considers the second day of work ended.

On the third working day, which is four days later in the calendar, the old man can begin the work of filing. Technically he could do this task everywhere, yet he naturally goes to the sacred place in order to complete this special ritual tool. After his offering he begins at the grip, first beautifying the flat sides by filing them smooth, and only then finishing the narrow sides of the grip. During this process he gives the grip a slight bodice by filing away more material near the cross pieces than at both ends of the handle (fig. 18). Nyisson is right-handed and lays his left hand on the end of the shoe-shaped handle at the tip of the tool. He pushes and pulls the file with his right hand while he regulates the bearing pressure with both hands. Accordingly he stands on the forward extended, slightly bent left leg, while he

places his right foot far behind his whole body in the movement.

The master very quickly finishes the work which he had done toil at the end of the day, and passes judgement on the work. He files on the cutting side of the blade with long strokes near the tip of the blade. As the blade is narrower, he does it with shorter strokes. He files the tip of the blade with short strokes in cross-section (fig. 19A), and hence it becomes wider and the back of the *pendat*. Next he files the form in cross-section and does not file the first 5-6 cm cannot be filed sharp. He files the triangular filed part, running from the tip to an always smaller part of the width of the grip and blade-tip, the cross-section of the blade, by two parallel areas (width) in the plane of the blade and third by a narrow area as seen in (fig. 19C). Hence an obtuse angle is at the back of its tip and leads to a sharp tip. This obtuse edge becomes really sharp when he files parallel to the surface.

Suddenly and without a trace he finishes the grip with a small triangular notch. The result, on which the wooden cap is placed, is on both sides of the raw peg, the blade is still too long he files a groove into it by knocking with the mallet on the back of the hand (fig. 20 and 21).

Following that, he again beats the blade in order to give both boundaries of the blade their final shape. He starts at the tip of the stamped out triangle, which is still too long, indentation in its middle (fig. 22). The *kamang* straight when polishing the blade with a Nipah-cigarette.

In the same manner as he finishes the distal peg, he now shortens both ends of the blade (fig. 23). He puts the *pendat* in the fire to decorate the handle with the *tandak*. But first the fire has to be kindled. He does this today. With 3-4 precise blows, e

places his right foot far behind, thus including both his arms and his whole body in the movement.

The master very quickly works up a sweat, takes off his shirt, which he had done toiled at the refining furnace right at the beginning of the day, and passes judgement on his prevailing workmanship. Then he files on the cutting side of the blade with the big file and with long strokes near the tip of the blade. Near the handle, where the blade is narrower, he does it with shorter strokes and faster sequences. He files the tip of the blade until it is pointed—triangular in cross-section (fig. 19A), and hence it is bounded by both sides of the edge and the back of the *pendat*. Near the grip the blade has a rectangular form in cross-section and does not possess a cutting edge so that the first 5-6 cm cannot be filed sharp (fig. 19B). This came about because the triangular filed part, running in the direction of the grip, takes up an always smaller part of the whole blade width. In the middle between grip and blade-tip, the cross-section is bounded by the back of the blade, by two parallel areas (which run parallel to the symmetrical plane of the blade) and third by both areas building the cutting edge as seen in (fig. 19C). Hence an obtuse edge runs along the blade, starting at the back of its tip and leading to the cutting edge near the grip. This obtuse edge becomes really apparent in the next work phase, when he files parallel to the symmetrical plane of the blade.

Suddenly and without a transition, he files the proximal end of the grip with a small triangular file. A somewhat rounded spike should result, on which the wooden cap can later be affixed. But first of all, on both sides of the raw peg, the end of the grip is filed clean. Since it is still too long he files a groove around the peg, until he can loosen it by knocking with the mallet of the vice and then breaking it off by hand (fig. 20 and 21).

Following that, he again begins to work on the blade point, in order to give both boundaries of the edge—which are for the spirits—their final shape. He starts at the shorter side of the asymmetrically stamped out triangle, which is for *tiriu* and files it round with one indentation in its middle (fig. 22). But he leaves the longer one (for *kamang*) straight when polishing it. Now he has earned a rest and lights a Nipah-cigarette.

In the same manner as he has filed off the excess length of the distal peg, he now shortens both cross-pieces to their final length (fig. 23). He puts the *pendat* in the fire again and heats it in order to decorate the handle with the *tanduk butan*, the coconut horn (fig. 24A). But first the fire has to be kindled again, since it was not needed yet today. With 3-4 precise blows, each one of the three curved bows is

stamped into the side of the grip. When the coconut horn is finished on one side—when all three lines are present—then the same pattern is applied on the other side, for which each side requires three work steps. Then Nyisson takes the tool and strikes an indentation from both sides into the grip. After several heatings, a hole results, in which decorative hair can be braided into (fig. 24B). Indeed Nyisson ends today's work at the forge, but he will procure a piece of wood of the *sebuah*-tree today in order to let it dry for about one week. Out of this he will curve the cap to decorate the proximal peg with.

The fourth work day takes place eight days later. Today the master files away the last undeanness, and afterwards hardens the blade by several quenchings at the hollow tree-trunk. In order to hold the *pendat*, he wraps a wet cloth around the grip of the *pendat* instead of using the provisional wooden handle. Now the blade is finished and only needs to be sharpened.

Two pieces of brass which were cut proportionally beforehand are laid and soldered around the grip as flaps for decoration. For this he uses a wire of soft solder and a small soldering iron which is heated in the fire (fig. 25A and 25B). The brass flaps are pounded around the grip with a small hammer, so that they fit, until clean edges result. During the soldering of these strips, which takes place on the anvil, a man from the village helps him, to whom the soldering tools obviously belong. This task takes about half an hour and ends in that the soldering droplets are filed smooth.

Now only the relic of a once existent wooden handle is still missing. The little wooden cap is affixed with a kind of rubber-latex prepared beforehand (fig. 25C). This happens in that chips of the latex are crumbled into the hollow of the cap, and afterwards, the very hot peg is pressed into the cavity. The excess latex, which has become hot and plastic, gushes out. The master rubs it smooth with his spit-dampened thumb, since the sticky material would adhere to dry skin and burn it. The wooden cap has a very round, proportionate shape, because the old man rotated it on sand-paper after carving it. In our case, it possesses a gleaming ornamental ring, which turns out to be taken from a ball-point-pen.

After this operation the *pendat* is completed, and no initiating ritual is necessary in order to use it ceremonially (fig. 26). But before the master packs up his tools, he compares the old and the new work, an occupation with which he will spend much time during the following days. Since he has spent four days of work in producing the knife itself, he must spend at least four additional days with the fabrication of

the *sarong*, the sheath (*sarong* = manifold, e.g. *sarong tangan* = to do this during the following or even later.

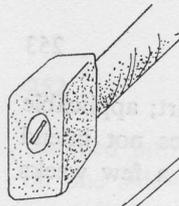
#### Acknowledgments

This study was undertaken by us (C.N.) to Curator, Mr. Ber Museum for their help in the case are indebted to Mrs. Deborah for their help when translating this

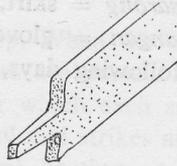
the *sarong*, the sheeth (*sarong* = skirt, wrap, but not: shirt; applicable manifold, e.g. *sarong tangan* = glove). However he does not intend to do this during the following days, but some time in a few weeks or even later.

#### *Acknowledgments*

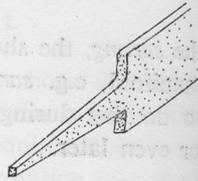
This study was undertaken in order to express the gratitude of one of us (C.N.) to Curator, Mr. Benedict Sandin and the staff of Sarawak Museum for their help in the course of a zoological field study. We are indebted to Mrs. Deborah Best and Mrs. Kathrin Schmidt for their help when translating this text into English.



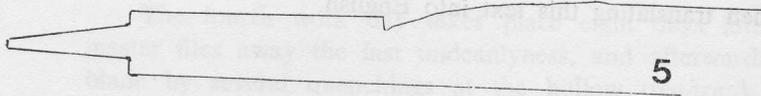
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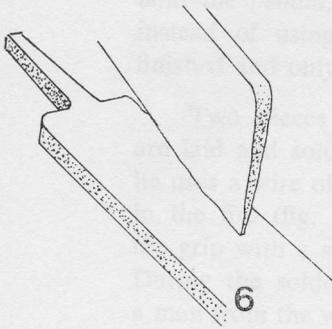
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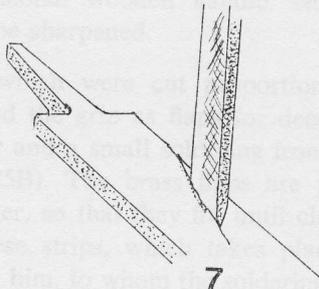
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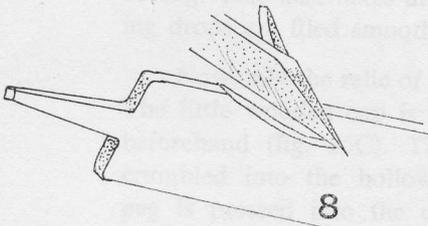
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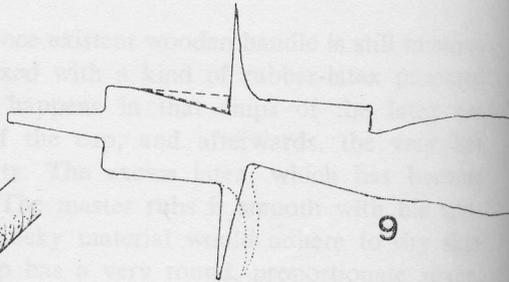
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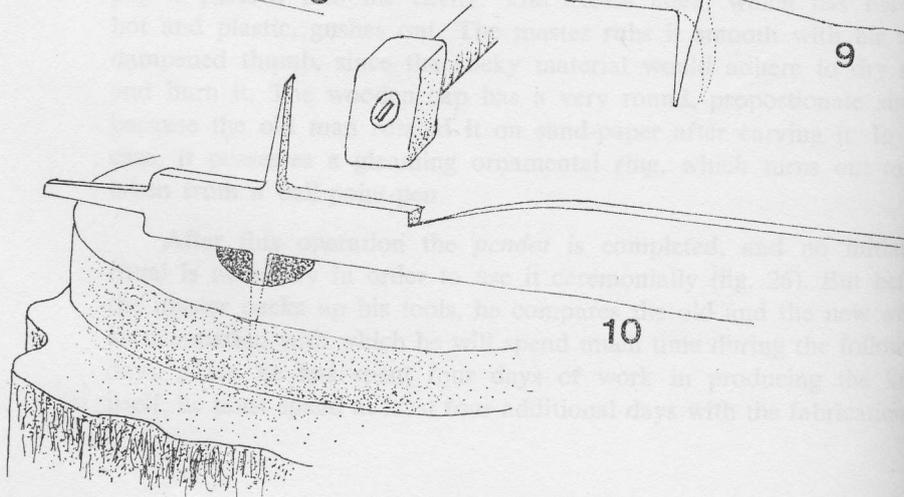
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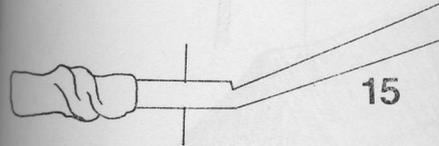
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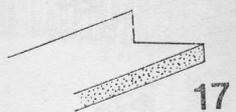
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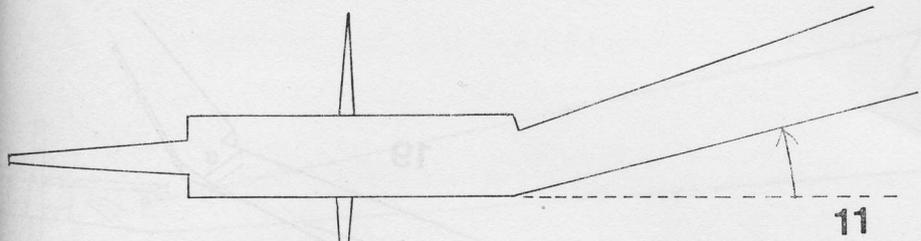
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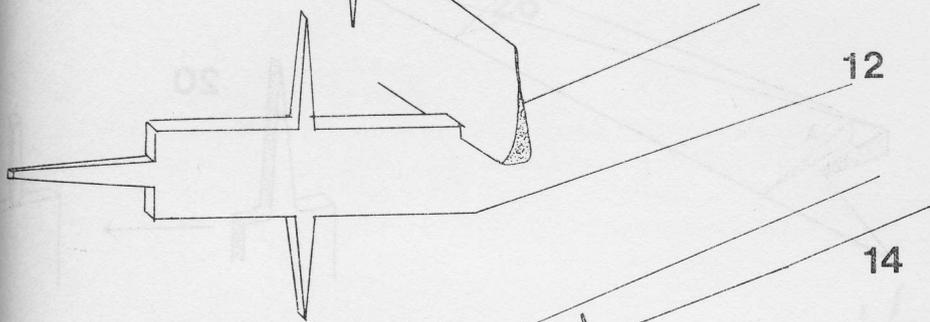
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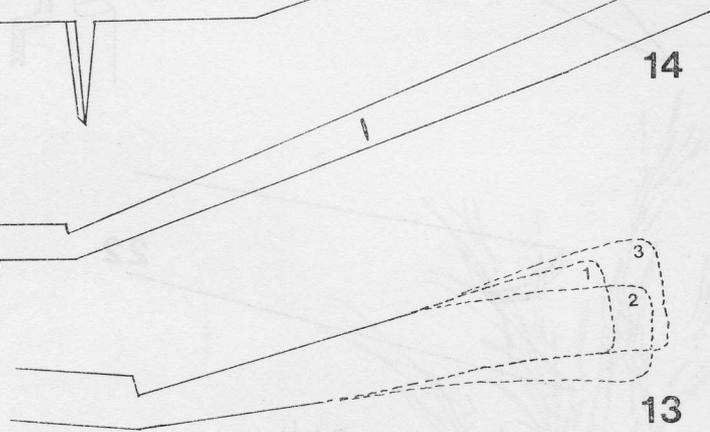
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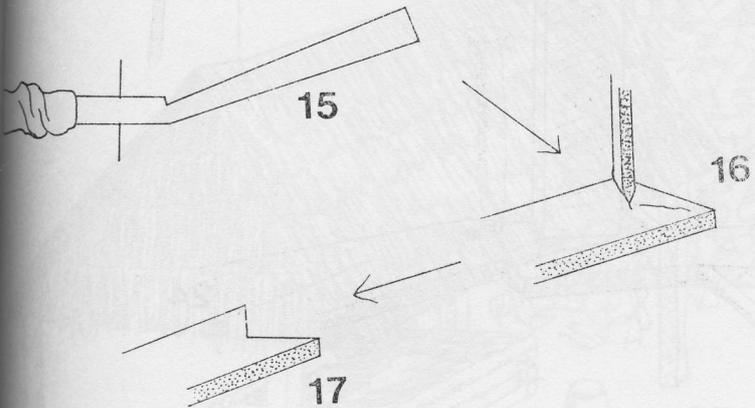


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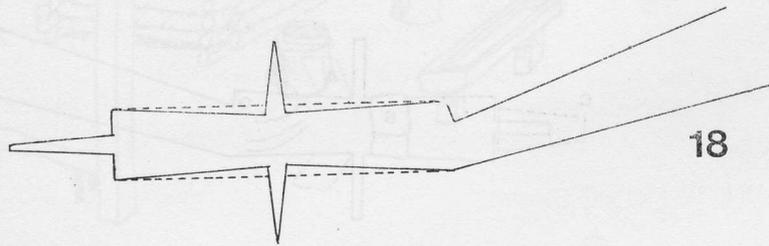
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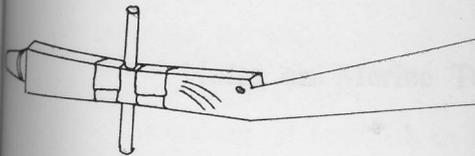
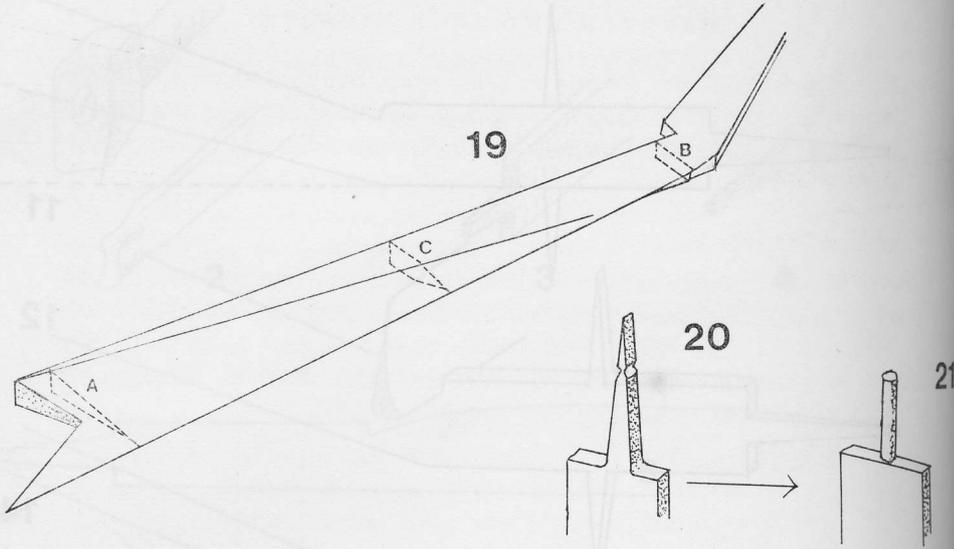
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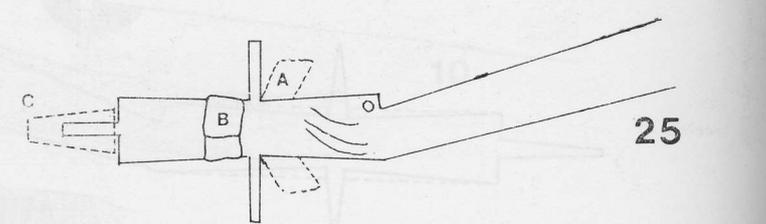
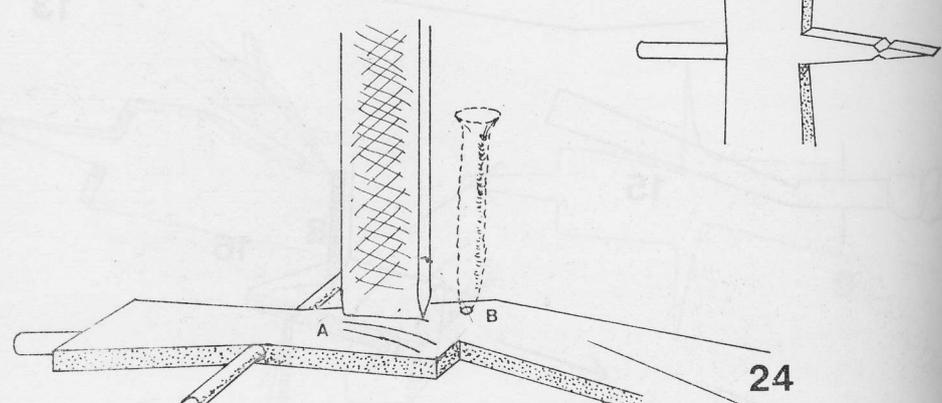
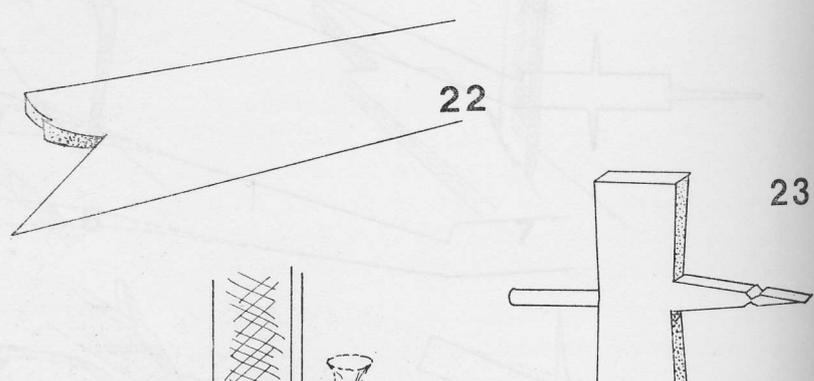
11,725 Green Tailed ...  
 when to be ...  
 Bear, Takang Takang ...  
 from January 1971 to December

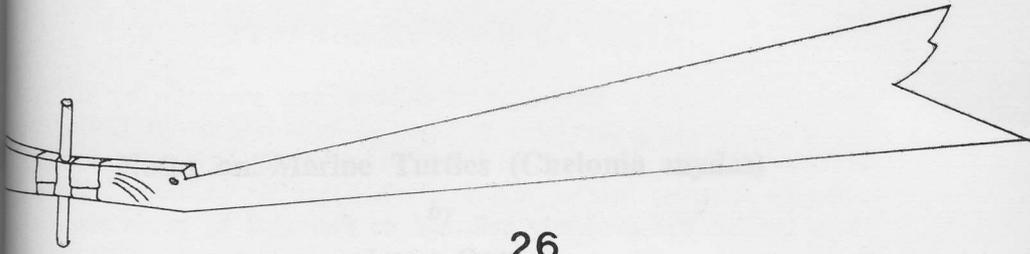
Year: No. of ...

1971	1,342
1972	2,581
1973	1,155
1974	2,044
1975	2,005

Total: 11,725

Year: No. of ...





26

LUCAS CUP

(Sarawak Museum)

11,726 Green Turtles (*Chelonia mydas*) were recorded to have come ashore to lay 1,194,391 eggs in the three turtle islands at Takang Takang Besar, Takang Takang Kecil and Pulau Nating, northwest of Sarawak from January, 1971 to December, 1975 as shown in Table 1 below:

TABLE 1

TURTLE EGG COLLECTIONS

No. of Turtles	No. of egg collections	No. of eggs
1,012	14,237	1,194,391
2,601	26,500	2,194,391
1,237	12,345	1,012,345
2,044	20,789	1,726,789
2,805	28,123	2,345,678
Total	11,726	1,194,391



1