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THE PINATUBO NEGRITOS

THEIR USEFUL PLANTS AND MATERIAL CULTURE

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EIGHTEEN PLATES AND FIVE TEXT FIGURES

INTRODUCTION

The problems and methods.—One of the most challenging problems in Philippine ethnology is the search for those elements of culture of the Philippine pygmies—tools, language, beliefs, and attitudes—which might be held in common by the widely scattered Negrito groups, distinct from other Philippine people, and which might define basic elements of an earlier Negrito culture or cultures.[1]

The difficulties of this type of inquiry are manifold, for the Negritos, like other Philippine ethnic groups, have recently

[1] The foundation of this study is a collection made by the writer in 1947–48 of approximately five hundred (500) plants used by the Pinatubo Negritos in their everyday life activities. This study would not have been possible without the fullest cooperation of Dr. Eduardo Quisumbing, Director, Philippine National Museum, and Dr. E. D. Merrill, Professor Emeritus, Harvard University, who gave freely of their time in establishing the binomial determination of each plant, as well as, Dr. Edwin B. Copeland who identified all of the ferns. In addition to the full support of this study by the National Museum, aid was received through Professor H. H. Bartlett, Director, Botanical Gardens, University of Michigan, with my appointment as one-third time collaborator in Philippine research. Professor H. Otley Beyer, as always, has guided my field work with his

29062

Like that of the men, the present costuming of the women is made entirely of manufactured cloth, and in addition, is identical with styles of dress found among the provincial Sambal women. Basic is the wrap around skirt, the *ináwak* (*lámit,* Bot.-Sbl), and among the younger women, a slip-over jacket the *kimónah* (!), which covers the breasts but leaves the midriff bare (see Plate 5, fig. 4). A longer wrap-around, called the *bahülüng,* which reaches and wraps over the breasts is also common. The older women wear only the wrap-around skirt paying little attention to the newer standards of modesty.

Informants stated that in the past G-stings, specifically the *talupina,* were also worn by the women and even at present, according to the Negritos, by the women of one pygmy group near Sawang, Zambales, an area which I did not reach. As we have noted above, future ethnological studies may very likely define the G-string, that is, a short length of cloth or bark cloth running between the legs and supported by a belt of rattan or some other material, as the older form of dress, and the loin cloth, that is, a longer piece of material which goes between the legs and then is wrapped one or many times around the waist, as a more recent attire.

PLANTS UTILIZED IN THE BOW AND ARROW COMPLEX

The survival of the bow and arrow among the Pinatubo Negritos, and its persistent use even today, markedly distinguishes the way-of-life of the pygmies from the surrounding lowlanders. The bow and arrow are used in nearly every life activity; hunting, fishing, trapping, dancing, games, fighting, ceremonies, and is still a highly meaningful trait to the Pinatubo pygmies.

The presence of the bow and arrow among all Philippine Negritos reported, and its absence among many other Non-Christian groups, has excited much discussion. Some students argue that the Negritos were solely responsible for the appearance in the Philippines of this complex. However, from brief comparative studies that I have made with the collections of the Philippine National Museum, and from personal field observations, it would appear that more than one distinct bow and arrow complex has filtered into the Archipelago. This thesis will be discussed in a future paper, when more comparative data are on hand. At present a detailed study of the plants used by the Pinatubo pygmies in the bow and arrow

complex, a description of all items in this complex, as well as the ways in which they are made, will help greatly to clarify ethnological problems concerning the bow and arrow. For these reasons, I attempted, while in the field, to collect and prepare for identification, every plant related to the bow and arrow complex in order to set forth this ethnobotanical data from one sizable Negrito group for future comparative studies.

The role of the bow and arrow has not remained unchallenged, for in recent years many guns have been utilized by the pygmies particularly in hunting wild pigs and deer. Most of these are home made shot guns, the *paltík,* made either locally by the more skilled Negrito smiths, or obtained from the forges of the Kapampangan near Patling, Talac (see Plate 5, fig. 2). In 1945 during the liberation of Zamabales, the pygmies obtained hundreds of rifles from Japanese soldiers who were killed while attempting to hide on the forested slopes of Mt. Pinatubo. However, these Japanese rifles will soon be useless, for already most of the ammunition has been consumed and it cannot be replaced.

The *paltík* are highly treasured, and now are commonly demanded for bride price in pace of the traditionally used bows, arrows, bolos, cloth, and other items. One of my closest Negrito friends gave ten (!) of these homemade shotguns to his parents-in-law as the bride-price, although this same friend hunts only with bow and arrow. I have a number of younger Negrito friends who have never killed a pig or deer with the bow and arrow, but who use guns exclusively. Still, when these same men are telling how they killed a pig or deer, they do not pantomime the raising of a gun to their shoulder, but the action of drawing the bow !

The use of guns has had considerable influence upon older Negrito activities, such as huntng. Formerly, hunting was a communal enterprise in which whole villages participated as either hunters or drivers. Now, a hunter may go out alone with one or two dog. Individualism, conflicting with older group activities, has arisen. Nevertheless, the bow and arrow will continue to survive in ritual activities, though much of its practical value ahs been lost.

The bows.—The bows of the Pinatubo pygies are simple in construction with no decorations, are very long (5½ to 6 feet), and draw between twenty and thirty pounds. They are called

bay'.[84] All adult bows are made from the outer hard wood palms, the *büyáng*, but the bows of the children are made of exotic bamboos. All items of the bow and arrow complex are made by the men or boys. Normally the bow and arrow are utilized only by the men and boys, and as a matter of fact, I have never seen a woman shoot a bow. Nevertheless, informants state that a few women are excellent hunters with the bow and arrow.

When a Negrito has located a suitable palm, he cuts off the top to let the green wood dry. After a few days he returns, fells the palm, and with his work bolo roughs out five to ten blanks. The outer portion of the palm wood becomes the belly of the bow. Then, the crude bows may be either buried in mud to give them a deep black color, or if one is needed immediately, placed in the sun to complete the drying process. The bows placed in mud are left there for at least two weeks, before they are also dried in the sun.

The completion of the blank at the dwelling is a complicated process involving s number of steps, and considerable work. First the blank is scraped with a bolo into the desired thickness, shape, and length (see Plate 6, fig. 2), and then the entire surface is rubbed with an abrasive stone, usually *kapülan*, a "travertime," to complete the form. The bow is then sandpapered with the dried leaves of specific plants (see Leaves used for sandpaper). Afterwards, the bow is rubbed with bamboo to give it a smooth surface and polish, and sometimes with the pounded bark of the tree *tambálaw*, *Myristica philippensis* Lam., to color the surface. The bow is completed by carving the nocks for the sting, and by rubbing it with beeswax to give the surface a sheen.

The following plants are used for men's and children's bows:

Anáw. Livistona spp.

According to the Pinatubo pygmies, the outer hardwood of this palm makes the very finest bows. The bows made of this medium frequently have a slightly concave belly (see Plate 8, fig. 7). The Negroid Dumagat of Polillo Island, and the Ipagi-Egongot of northern Quezn Province also consider this palm has the best material for bows. Father Vanoverbergh notes

[84] Cognates for the Pinatubo Negrito's term for the "bow" are found in other Philippine dialects: *bi'* (Pol.-Dum), báyi (Hanunoo-Mangyan), *bái'* (D.-Neg.), and the Tagalog word for the outer hard wood of palms, *báhi*.

that the Abulug Negritos makes bows from *Livistona rotundifolia* Mart.[85]

The local name of this palm is possibly a contraction of the term *anaháw* which appears throughout the Philippines for species of *Livistona*. However, the Polillo Dumagat call this palm *áno:*, the Egongot call it *anáw*, and it is also possible that these forms are the original terms with names, such as *anaháw*, being the result of an accretion of syllables.

Báy'an. Memecylon sp.

The hardwood from the bole of this tree is made into bows on rare occasions, particularly when palm woods are not available. It is apparent that this plant name has been derived from the Negrito's term for "bow," *bay'*. Merrill notes that *Memecylon lanceolatum* Blco., is called *bayan* in Sambal. No other cognates were found.

Bánga'. Orania palindan (Blco.) Merr.

Good bows can also be made from the outer hardwood of this palm, but it is not frequently used. *Orania palindan* is called *bánga'* in Panay Bisaya, Tagalog, Polillo-Dumagat, and in other Philippine dialects. *Bangá'*, having a different stress, is the Sambal and Tagalog term for a pottery water jar.

Kalaíhan. Aglaia sp.

The hardwood from the trunk of this tree is carved into bows. I have not seen a single bow made of the three trees, *báy'an*, *kalaíhan*, and *palikayüwün*, but only of the outer hardwood of palms and bamboo. Nevertheless, the pygmies state that the wood of these trees is used on rare occasions. No cognates were found for *kalíhan*.

Kawáyan-mantüg. Bambusa spinosa Blm.

All children's bows are made out of strips of this large, thick-walled bamboo, and on very rare occasions, young men will use bows made from this medium. According to Merrill, this bamboo is of prehistoric introduction which probably accounts, in part, for its limited use for bows by the pygmies. In addition, it is very inferior to the outer hard wood of palms as a medium for bows.

Idük. Arenga pinnata (Wurmb.) Merr.

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[85] Vanoverbergh, Morice. Negritos of Northern Luzon. Anthropos (1925) 414.

The outer hard wood of this palm is also a good material for bows, although its use is limited. *Arenga pinnata* is called *irók* in Botolan-Sambal, and according to Merrill, *igok* in Cebu Bisaya, and *hidiok* in the Bikol regions.

Palikayúwün. Linociera ramiflora (Roxb.) Wall.

According to the Pinatubo pygmkies, bows are sometimes made out of this hard-wood tree, although as noted above, I have not seen a single specimen. No cognates were found for this plant name. The word base appears to be *káyu*, the Sambal term for "tree."

Takípan. Caryota cummingii Lodd.

The outer hard wood of this palm, according to the opinions of the pygmies, yields the second best bows. This plant name is commonly encountered in the surrounding dialects for the "palma brava." The Pinatubi Negritos also call this palm *ágüh* believing that it is a different plant. The variations in the shapes of the branches probably account for this erroneous distinction.

The arrow shafts. The Pinatubo pygmies distinguish more than fifty (!) types of arrows and have either specific or descriptive terms for them. The generic term for arrows is *yaw*,[86] and the varieties are determined primarily by the differences in the points. In this discussion, however, we shall enumerate and describe four types of arrows based upon their use, and by the type of shafts: (1) a short, light, "flight" arrow which is used for hunting pigs and deer, in fighting, or in games, (2) an extremely long arrow, usually about six feet, which is used in hunting birds and shooting fish, (3) an arrow with a shaft made from the outer hard wood of palms which is purely ceremonial in function, and (4) a heavy, stout arrow made of a large reed, or wood, which has a detachable point,

[86] The terms *yaw* and *yáo* are employed by all of the Negritos of the Zambales Range for "arrows" in general. Among the Pinatubo pygmies, the word is specific, and is not the plant name of a reed used for arrow shafts. However, this term has probably been derived in the past from a plant name. Garvan, in an unpublished lexical list found in Beyer's Manuscript Collection, notes that the Negritos of Inga and Baao, Camarines Sur, cal arrows, *bigao*. Merrill notes that *bigao* is Bikol for *Miscanthus sinensis* Anders., and that the same plant is called *bilau* by the Ifugao and Igorot who do not functionally employ the bow and arrow. *Miscanthus japonicus* (Thunb.) Anders., also a good cane for arrow shafts, is called *buyau* in Ifugao, and *viau* in Ivatan. A reed used by the Ipagi-Egongot for arrow shafts, Phragmites vulgaris (Lam.) Trin., is called by them *biyáw*, and by the Tagalog in the Baler area, *biláw*.

or a large metal blade. This latter type of arrow is used only for hunting the wild pigs and deer.

All arrow shafts are called *ulúngan*, and are frequently decorated with beautiful, incised geometric patterns, the *batik* (see Plate 8, figs. 8-18). In contrast to other Philippine groups utilizing the bow and arrow, particularly in areas south of Luzon, the arrows of the Pinatubo Negritos are always fletched with three large feathers. The feathers for fletching are called *puwál*.[87] In addition, many of the shorter, flight arrows have a protective covering between the nock and the feathers, the *kopüt*, made from the casing of the cocoon (see Plate 8, fig. 2). I have not seen this employed other than by the Negritos of the Zambales Range. Variations of the "primitive release" (see Plate 8, fig. 4) are used in drawing the bows, and they are strung by pushing with the foot against the center of the bow.[88]

The reeds and small bambooss used for the arrow shafts are merely trimmed, drid in the sun, and straightened by heating and with hand pressure. The palm wood and ordinary wood shafts are rounded perfectly by scraping the shaft with a bolo, and by using dried leaves for a sandpaper. The proper length of each type of arrow is obtained by individual measurement (see Plate 8, fig. 1).

Anáw. Livistona spp.

The most beautiful and valuable arrows encountered among the Pinatubo pygmies are made from the outer hard wood of this palm, or sometimes from *takípan, Caryota cumingii.* Despite the crude tools, the arrows are perfectly rounded with machine-like precision. This type of arrow, called *yulyál*, is purely ceremonial in functions, that is, it is not employed for hunting, but as gifts to spirits, for bride price, or as hereditary gifts to young male children.

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[87] *Pulád* (Tag.); *pulál* (D.-Neg.); *pulad* (Pol.-Dum.); *alád* (Casiguran-Dum.); *alág* (Egn.). The tail and/or wing feathers of the following birds are commonly used for fletching by the Pinatubo pygmies: the hornbills, *talíktik* (*Penelopides p. manillae*) and *gahálaw* (*Buceros h. hydrozorax*), the *tikwi* (*Bulastur indicus*), the *láwin* (*Haliastur indicus internedium*), the *bulílak* (*Spilornis cheela holospilus*), and a few others.

[88] Morice Vanoverbergh writes: " At *Giba*—I saw *Basí*—stringing one of his bows. In order to do this, he successively attached the cord to one of the ends of the bow, stuck this end into the ground, bent the bow by pushing with the foot against its center, and finally attached the loose end of the string to the free end of the bow." Negritos of Northern Luzon Again. Anthropos (1930) 66-67.

Bikaw-mantüg. Schizostachynum fenixii Gamble
Pühiw. Schizostachynum lummampao (Blco.) Merr.
Bayóg-mantüg. Dendrocalamus merillianus (Elm.) Elm?
Baytó, bináhak, duwánan, guníhí, yábíl. Schizostachyum spp.

The short flight arrows are made of the above eight small bamboos which all belong, with the exception of one, to the same genus. Unfortunately, some of my bamboo specimens were sterile, and it was not possible to obtain the species of each plant.

The plant names *baytó, bíkaw,* and *púhíw* are related to plant names for small bamboos in other Philippine dialects. No cognates were found in Merrill for *bináhak*, *duwánan*, *guníhí*, and *yábíl.*

Móa. Miscanthus sinensis Anders.[89]
Uyóng. Miscanthus floribundulus (Labill.) Warb.
Táib. Saccharum spontaneum Linn. Subsp. *Indicum* Hack.

Most of the long bird and fish arrows are made of the tall can, *móa*, but as *uyóng* and *táib* are very common grasses in the Pinatubo area and easier to secure, these latter two reeds are sometimes used for the shafts. No cognates were found in Merrill for *móa*, but *táib* appears in Tagalog and in other Luzn dialects as *talahíb*.

It is interesting to note that the specific word for "arrow" in a number of Philippine dialects has apparently been derived from mutations of plant names for species of *Miscanthus*. Harold Conklin recorded the words *ugyóng* among the Hanunoo-Mangyan and Buid-Mangayan (Non-Christian groups in Mindoro) for "arrow," and *udyóng* among the Ratagnon Mangyan, also meaning specifically, "arrow." Fr. Diego Bergano's *Voca-bulario de la Lengua Pampanga*, gives

[89] Father Vanoverbergn notes that *Miscanthus sinensis* Anders. Is the common medium for arrow shafts among the Abulug Negrito. (Cf., Vanovernergh, Morice. Negritos of Northern Luzon, p. 414). In New Guinea, *Miscanthus japonicus* Anders., and wild sugar cane, are the common canes for arrow shafts. [Cf., Blackwood, Beatrice. Use of plants among the Kukukuku of southeast Central New Guinea. Proceedings of the Sixth Pacific Science Congress 4 (1940) 118-126]. Among the Polillo Dumagat on the northeast coast of the island, the only cane which is used for arrow shafts is also *Miscanthus japonicus* which they call *ayíyóng* (*tub-ás*, Polillo-Tagalog, and *bigó'*, Casiguran-Tagalog).

uyung as the Pampangan term for "arrow."[90] As we have noted, *uyóng* among the Pinatubo Negritos, as well as among other Negrito groups in the Zambales Range, *ayíyóng* among the Polillo Tagalog and Dumagat groups, are all vernacular plant names for species of *Miscanthus*.

The bow strings—The Pinatubo pygmies make strong and durable bow strings out of the bast of a number of vines, the hanging roots of the strangling figs, and from the inner bark obtained from the boles of specific trees. The following description of the Pinatubo Negritos making a bow string, at the village of Kawáyan, Zambales, is taken from my 1947 field notes:

> The Negritos cut off a seven foot length of the whole hanging root of the tree, which was about the size of my thumb, and then split the root lengthwise into two equal halves. The hard core of the root was then removed by violently twisting each half, and the outer bark was carefully stripped off exposing the tough, white bast. We returned to the village, and there the man carefully trimmed and scraped the two long strips of bast into the desired width and thickness. Then two men, standing at each end of the seven foot lengths, pulled and while pulling, twisted together the two strips of bast. Finally, rattan was tied to each end of the new string, and it was stretched and tied between two trees (see Plate 6, fig. 1).

On other occasions, I have seen the Negritos twist the string in the manner described above, and then suspend the string from the limb of a tree with a heavy stone secured at the bottom end to keep the string taut. The rock was also secured so that it would not rotate and unravel the newly made string.

The strings for the children's bows are made out of trimmed rattan (this, or trimmed bamboo, is the medium most common-ly employed by the Non-Christian groups in Mindanao), but rattan is never used for men's bows. All bow strings, as well as the strings of musical instruments, are called *düh*.[91] The bow string is made about a foot and one-half longer than the bow, and wrapped loosely around one

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[90] Bergano, Fr. Diego. Vocabulario de la lengua Pampanga. (Imprenta de Ramirez y Girander, Manila) 1860.

[91] In Rotolan-Sambal bow strings and the strings of musical instruments are called *duúh*, and *dás* by the Negrito of the southeastern slopes of the Zambales Range in the vicinity of Florodablanca, Pampanga. Garvin, in an unpublished lexical list in Beyer's manuscript collection, notes that the Negritos of Mt. Samat, Bataan, call the bow strings *lölö*, but among the Negritos in the Dinalupihan area Bataan, I also recorded the term *düh*. Related terms for the bow string are found in other dialects: *dügút* (Egn.) *dílís* (Pol.-Dum.), and *dilís* (Tag.).

end. Should the string break while hunting, it can be quickly spliced (*hublóng*, Pint.-Sbl., but *huldóng*, Bot.-Sbl.).

The leaves of one vine, *lúngon-düh*, *Rourea volubilis* (Blco.) Merr., are rubbed on the completed string to make it durable, and the bast of *úlip*, *Cypholophus moluccanus* (Blm.) Miq., may be wrapped around the ends of the bow string where it is looped around the nocks to prevent excessive wear from friction. The bow string knot (see Plate 8, fig. 5) is identical among all pygmy groups in the Zambales Range with whom I have worked. The bow strings made by the Pinatubo pygmies are, by any standards, excellent, and are greatly superior to strings made of trimmed rattan, or bamboo, which are encountered in the southern Philippines.

The inner bark for the bow strings is obtained from one of the following plants:

Anópo. *Conocephalus* sp.
(vine) Local names: *hanópol* (Tag.) ; *anapul* (Ig.) ; *anopal* (Bilaan) ; also *anópol* (Pol.-Dum.) and *hanópol* (Pol.-Tag.) for *Pokiliospermum suaveolens* Blm.

Balíti. *Ficus nuda* Miq.

Bubúlon. *Ficus caulocarpa* (Miq.). Miq.
(tree) Local names: *bubúlon* (Bot.-Sbl.)

Kalánat. *Artocarpus blancoi* (Elm.) Merr.

Kalyámat. *Ficus bakeri*. Elm.

Kamalíngaw. *Ficus subulata*. Elm.
(small tree) no cognates found in Merrill.

Malapáo'. *Ficus payapa*. Blco.
(large strangling fig) This plant name means 'like (*mala*) the *pao'* (*Mangifera altissima*).

Pagdüh bay'. *Hypserpa cuspidata*. (Wall.) Miers.
(vine) When translated, this local descriptive plant name means 'used for the string of a bow."

Panamhiyín. *Ficus* sp. Blco.
(tree) No cognates found for this plant name.

Puputút. *Ficus* sp.

Plants yielding bast used for securing the feathers and projectile points to the shafts.—If well made, and showing pride in the workmanship, all flight arrows have two wrappings, an inner and outer, provided to securely fasten the arrowpoints

and feathers to the shaft (see Plate 6, fig. 3). The *bülbül*[92] is an "inner wrapping" made of tough sinew-like basts obtained from a number of specific vines and trees. The bast employed for this purpose is scraped until it is very thin and narrow, and while still wet, wrapped around the arrow. The following plants are used specifically for the inner wrapping:

Balíti. *Ficus nuda.* Miq.

Bubúlon. *Ficus caulocarpa.* (Miq.) Miq.

Kilíyat. *Gnetum indicum.* (Lour.) Merr.

Dalúnot. *Pipturus arborescens.* (Link.) C.B. Rob.
(tree) Local name: *dalúnot* (Tag.).

Úlip. *Cypholophus moluccanus.* (Blm.) Miq.
(tree) Local name: *dalúnot* (Tag.).

The "outer wrapping," or *apún*, is made of the carefully trimmed bast of only one vine, or of one rattan. The *apün* is wrapped directly over the *bulbul*, and has two functions: (1) to protect the inner wrapping which actually holds the feathers and points in place, and (2) to make the entire wrapping more attractive. The relationship between the two wrappings of the arrow shaft are shown in Plate 8, fig. 3. The two plants used for the outer wrapping are:

Malaúban or *malikóban.* *Calamus* sp.

(rattan) Local name: *malaúban* in Tagalog for *Calamus siphonospathus* Mart., and *oban-oban* (Bag.) for the same species.

Undáyaon pag-óng. *Tinospora reticulata.* Miers.

(liana) When translated into English, this local plant name means the "Hammock" (undáyan) of the turtle (*pag-óng*)," and describes facetiously the manner in which this large vine hangs.

Plants utilized in making points for the bird arrows.—For hunting birds, the Pinatubo pygmies employ a very long arrow which has a trident-like point made of wood or bamboo. These "tridents" have three to five individual points with many small barbs (see Plate 7, fig. 6). Arrows with long shafts are used when the anticipated trajectory is upward, such as in

[92] *bídbíd* (Pol.-Dum.) ; *buntál* (Egn), but the vine from which the best is obtained is called *bidibíd*; bulbul, Bataan and Pampangan Negrito; *bülbúl*, "pubic hair," Tagalog.

shooting birds, for the Negritos argue that the longer shaft gives greater accuracy in an upward flight.

In the past, these same arrows were also used to shoot fish, but today the Negritos use a trident with two or three barbed metal points. In general arrows having trident-like heads are called *balangát* (the term also describes the arrow point), but if the tridents are made of metal, they are commonly called *halapáng*.[93]

The following plants yield readily workable and durable mediums from which the pygmies carve the points of the *balangát*:

Báy'an. *Memcylon* sp.

Banatóh. *Mallotus philippensis.* (Lam.) Muell.-Arg.

Kalaíhan. *Aglaia* sp.

Kawáyan-Mantüg. *Bambusa spinosa.* (Blm.) Introduced plant.

Dúwanan. *Schyzostachyum* sp.

Púhiw. *Schyzostachyum lumampao.* (Blco.) Merr.

Palikayúwün. *Linociera ramiflora* (Roxb.) Wall.

Plants utilized in making arrows with detachable points.—The most remarkable arrow used by the Panatubo Negritos is the *hübat*[94] which has, as we have noted, a detachable point (see Plat 7, fig. 5). When this arrow strikes a pig or deer, the barbed metal point is stuck in the flesh, and the shaft detaches. The sturdy shaft is held to the point by a strong cord approximately one meter in length. As the shaft drags behind the fleeing animal, it is caught in the undergrowth, and either traps the animal, or inhibits its flight, so that it can be dispatched by the hunter with another shot.

The shafts of these arrows are usually made of *báy'an*, *Memcylon* sp., or of *púhiw*, *Schyzostachyum lumampao* (Blco.) Merr. Between the shaft of the arrow and the arrowpoint (see Plate 7, Fig. 5–a), there is a short length of hard wood, called the *lobúngan*, which either detaches with the arrowpoint, or detaches separately from the arrowpoint and the shaft. Only

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[93] Harpoons for fish, often having trident-like heads, are called *salapáng* in Tagalog, *sarapáng* in Tagbanuwa and Polillo-Dumagat, *sapáng* in Leyte-Bisaya, and similar mutants in other dialects.

[94] *Síbat* is a generic term for spear in a number of Philippine dialects.

the following plants are used to make this foreshaft (see the discussion below of the Traditional uses of these plants):

Apyóh. *Callicarpa formosana* Rolfe.
(bush) Local name *anoyop* (Ilk. Ibn.)

Búwa úngot. *Ixora philippensis..* Merr.
(bush) This is a local descriptive plant name, but the meaning is not clear. *Búwa'* means "prolapsus uteri" and *úngot* is the Sambal term for the common coconut.

Káyum-bákil. *Canthium diococcum* (Gaertn.). Merr.
Enonymous cochinchinensis Pierre
(small trees) This descriptive plant name means the "tree (*káyu*) of the mountains (*bákil*)"

Páan-labúyo.[95] *Pavetta inidica.* Linn.
Psychotria zambalensis Merr. & Quis.
(small trees) Local name (see footnote No. 95)

Páan-labúyo-bágbag. *Ixora macrophylla* Bartl.
(small trees) Local name (see footnote No. 95)

Six small, strong, parallel cords secure the projectile point of the *hübát* to the shaft, and when the latter is entangled in the undergrowth, holds the pig or deer (see Plate 7, fig. 5–b). This cord is always made of the inner bark of one of the following three plants:

Kiliyát. *Gnetum indicum* (Lour.) Merr.

Dalúnot. *Pipturus arborescens.* (Lnk.) CB Rob.

Úlip. *Cypholophus moluccanus* (Blm.) Miq.

Nother type of arrow, which may or may not have a detachable point, is also encountered among the Pinatubo pygmies, the *hawíl* (*tambát* or *sawíl* among the Bataan Negritos). The shaft of this arrow, like th bird arrows, is very long, and also made of *móa*, *Miscanthis sinensis*, Anders. The barbed metal point detaches in the manner and with the function described for the *hübát*, but there is no foreshaft, and the tail-like base of the arrowpoint fits directly into the shaft. The *hawíl* is used to shoot monkeys. Monitor lizards, large birds, and fish.

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[95] The Pinatubo pygmies call at least six small trees the *páan-labúyo*, all belong to the family *Rubiaceae*. It is obvious that this descriptive plamt name has been borrowed by the pygmies, for although *labúyo* means "wild chicken" in surrounding dialects, it has no meaning to the Negritos. They call the wild chicken, *manók-dikót*, that is the "grass chicken." In Tagalog, this plant name would mean the "wild chicken's foot." A *bágbag* is a "large forest tract with sizable tree."

Toy bows and arrows.—Ypung male children play, or hunt birds, frogs, lizards, field mice, and other small animals, with toy bows made of bamboo, usually the introduced *kawáyan-mantúg*, *Bambusa spinosa* Blm., and arrows made of either the same medium, split and trimmed, or of the stems of the following two grasses:

Talagáw. *Rotboellia ophiuroides* Benth.
(grass) Local name: *talango* (Tag.)

Talítĭk. *Andropogon tortilis* (Presl.) Merr.
(grass) This is a common name throughout the Archipelago for the "Tarietic Hornbill" (*Penelopides p. manillae*).

These toy arrows are not normally fletched but have only a nock for the bow sting, and the end of the shaft is sharpened for the point. Sometimes precocious youngsters will fashion arrowpoints of bamboo which are identical to the metal points used by their fathers, add feathers to the shaft, and have a miniature replica of adult types of arrows. All toy arrows are called either *laháy-laháy* or *yaw-yáw*, and the toy bows, *báy'-báy'*. It is play activities such as this one, which copy adult behavior, that train the children for the responsibilities of their culture. Formal teaching is rare, for example, the father does not systematically show his son how to make a bow and arrow, but rather the child learns by observation, and by copying activities (see Plate 6, fig. 4).

Traditional uses of plants.—The plants utilized in the bow and arrow complex, as well as in other activities, are greatly influenced by tradition. For example, there are many hard wood trees which could be used for the foreshaft (*cf.*, p. 272 the discussion of the *lobúngan*), and the pygmies are aware of this fact, but due to traditional influences they select only those plants enumerated. Consequently, the plants which have been described herein are nearly all, if not all, of the plants which are normally utilized by the pygmies in making the bows and arrows. When more thorough ethnobotanical data is available it will be interesting to see if these same plants are also traditionally utilized by other ethnic groups who still possess the bow and arrow. If persistent and geographically contiguous similarities and/or differences do exist, it might define, as I suspect, distinct bow and arrow trait-complexes.

Stone arrow points ?.—As we shall see in a following section of this monograph, the Pinatubo pygmies possess the double bellow, vertical, bamboo forge and have apparently been working metals for a considerable period of time. With the excep-

tion of the bird arrows, which are still made with points of bamboo or hard wood, all of their arrows now have metal points mad by the Negrito smiths. In contrast, other items in the bow and arrow complex are made wholly from native Philippine plants, and could be of great antiquity. Therefore, what were the mediums used in making arrowpoints prior to the time that the Pinatubo Negritos could obtain drift-metals, and had the forge with which the metals could be worked?

We have one early observation by Dr. John Frances Gemelli Careci, made during his trip around the world from 1693 to 1697, which specifically notes the use of stone arrowpoints by the Zambales Negritos. This observation, which significantly is the only historical reference yet produced noting the use of stone for arrowpoints in the Philippines, is as follows:

> Their weapons are Bows and Arrows, a short Spear, and a short Weapon, or Knife at their Girdle. They Poison their Arrows, which are sometimes headed with Iron, *or a sharp Stone*, and they bore the Point, that it may break in their Enemies Body, and so be unfit to be shot back.[96]

Typologically, Professor H. Otley Beyer has defined some very crude stone flakes in his collections as arrowpoints.[97] These arrowpoints (?) are extremely crude, for none show any signs of controlled faking, and as a matter of fact, … *[NOTE: The copies of the original break off here and jump to later pages.]*

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[96] Reed W. A. Negritos of Zambales (1904) 29. The Negritos of the Zambales Range do not normally use arrow poisons and are not aware of the plants—such as, *Solenospernum toxicum* Loher., and S*trophanthus* spp., used by the Polillo-Dumagat—which can be used for this purpose. I have never seen a Negrito poison an arrow although it is a widespread opinion among the surrounding lowland people that all of their arrows are poisoned tipped. Informants do state that on very rare occasions poisoned arrows were used against enemies. The point, according to informants, was removed from the arrow and pushed into the body of a scorpion fish *napó'* (*Gymnapistes niger* Cuv. And Val.) which has poisonous spines. The fish and point were then wrapped in banana leaves and placed in a fire until the fish had burned into ashes. The point was then reinserted into the shaft of the arrow and was believed to be poisonous. Frank Dorn states: "The arrows are not ordinarily poisoned. If a Negrito should decide to kill a man, or, as in the past, a party should decide to attack or raid another group, the 'war' arrows would always be poisoned by having both the point and part of the shaft impregnated with the decayed meat of an animal." Dorn, F. Hungry Negritos in their watchful forests. Asia 31 (1931) 727.

[97] *Cf.*, Boyer H. O. Outline review of Philippie archeology by islands and provinces. Phil. Jour, Sci. 77 (1947) 205, *plate 10*, for illustrations of Neolithic arrowpoint (?).

…-functional discussion of these people must necessarily treat of this tool.

PLANTS USED IN THE BOLO COMPLEX

The presence of the forge has also enabled the Pinatubo Negritos to make many varieties of bolos and knives each having specific functions and name, but which are called generally *ítak* (see Plate 9 for representative types of their bolos). The *katána* is the most beautiful bolo, having a long thin blade, and which is used for fighting, for bride price, or as a gift to th spirits. This bolo has a beautiful geometrically patterned handle carved from the black horn of the water buffalo. The finest katána are found among the Aburlin pagans who live I the Tarlac area of the Zambales Range, adjacent to the territory of the Pinatubo Negrito, and who though closely reated in culture to the Pinatub pygmies, are mostly non-Negrito in physical type. However, the blades for the Aburlin's *kátana* are fashioned in the forges of the Pinatubo Negrito; specifically, in the Baklay area. The *yánoh* and the *dipaláta* (from *dila'*, "tongue," denoting the shape of the blade) have the same uses as the *katána* with long, thin blades, but vary in form.

The *hundáng* (*sundáng* in many Philippine dialects) is a rather small bolo with a narrow, pointed blade. This is the type commonly carried by the men and used in countless daily activities, such as in making a bow, or cutting the feathers for fletching, but this bolo is never used for making clearings. The *ádol*, the *talódo* or *tagóho*, are thick bladed, blunt headed, work bolos used by the men, and particularly by the women, in making the clearings, in planting, and in digging tubers. In addition, there is the curved *kumpáy*, with a saw-toothed edge, used in harvesting rice; small work bolos, the *pándul* or *ongkáb*; still smaller household knives, the *küyá'*, and many others such as the *binakóko*, *panabód*, *abókay*, and *kálawit*, each distinctive in shape. Even in instances where blades may be obtained from lowland forges (e.g., the *pandúl*)—particularly from the Pampangan in the vicinity of Patling, Tarlac—the blades will be reworked to conform to traditional patterns. All of the scabbards as well as handles of the knives and bolos are made locally by the owners of the blades.

Wood for scabbards.—The bolo scabbards, *gúma*, are made very skillfully from two pieces of wood. One thick piece is chiseled out to fit exactly the blade of the bolo and the other forms a thin flat cover (see Plate 9). The work is so well done, and the two pieces put together so carefully that it is some-

times difficult to detect that two separate pieces of wood are actually forming the scabbard. The pieces are glued together with pastes obtained from specific plants (these plants will be discussed below) and, in addition, may be strengthened with rattan bindings or wooden pegs. The following woods are used specifically for making scabbards:

Anggagaí'. *Golphandra cumingiana* (Miers). F-Vill.
(tree) No cognates were found

Bálang-áyta. *Diospyros* sp.[126]
(tree) Local names: *bolongéta* (Tag.); *balingágta* (Ibn.); *atá-atá* (P. Bis.) for *Diospyros* sp.

Banatóh. *Mallotus philappensis* (Lam.). Muell-Arg.
(tree) Local name: *bonato* (Tag., Ibn., Ig.)

Báyoy. *Pterospermum obliquum.* Blco.
(tree) Local names: *bayói* (Pamp.); *bároi* (Ilk.); and *bayóg* (Tag.)

Boyngáh. *Wendlandia luzoniensis* DC.
(tree) No cognates were found

Kalibutbút-ya-Tagálbag. *Voacanga globosa.* (Blco.) Merr.
(small tree) Local names: *alibútbut-nga-bai* (P. Bis.); the term *tagálbag*, as used by the Pinatubo pygmies, defines the fact that birds do not eat the fruit of the plant.

Laníti or *anaótung.* *Wrightia laniti* (Blco.) Merr.
(tree) Local names: *anótung* (Tag.); *laniti* (Tag., P. Bis.).

Lulpó'. *Arthrophyllum ahernianum.* Merr.
(small tree) Local name: *danipo* (Ig.)

Natá'. *Palaquium* sp.
(large tree) Local name: *natá'* (Tag.) for *palaquium* spp.

Ngúho'-dagí. *Ligustrum pubinerve* Blm.
(large bush) The Negrito also call a plant of New World origin by the same name meaning the "rat's snout."

Pangkól. *Aralia bipinnata.* Blco.
(tree) No cognates were found.

Pánagulingin. *Cratoxylon celebicum.* Blm.

Pupukkól. *Ardisia verrucosa.* Presl.

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[126] *Diospyros* spp. Are hard, dark wood trees and the color of the wood has undoubtedly provoked the common local plant names for this genera. The terms *áyta*, *éta*, *íta*, *agtá*, all cognates, are used by the lowland people throughout the Philippines to define the dark skinned, "Negroid" groups.

Pupukohl-bagbág. *Ardisia proteifolia.* Mez.
(small trees) No cognates were found for the plant name *pupukohl*, but it is probably a locally coined word. The word *bagbág* means "a large heavily wooded forest," and in the Negritos' classification system differentiates these two Ardisiae by the habitat of the latter which is in the forest.

Tambálaw. *Myristica philippensis.* Lam.

A reddish, shellac-like material, which the Pinatubo pygmies call *pamaudit* (from *maudit* or *naudit*, "red"), is obtained from the scraped bark of this tree. This is merely rubbed on the surface of the scabbard to give a colored polish.

The bark of the *banáw-laláki*, *Neonauclea bartingii (DC.) merr., is sometimes attached to the scabbards to* form an unusual decoration which is called specifically, *gáot*. The mature fruit of *bulináy*, *Antidesma pentandrum* (Blco.) Merr., yields a black dye which is also used for decorating the scabbards. According to Merrill, this latter plant is called *balanei-na-manok* in Pangasinan, *bugnai* in Ibanag and Ilokano, and *bunai* in a Negrito dialect the location of which he does not note.

Woods for bolo and knife handles:

Áum-áum. Melanolepis multiglandulosa. (Reinw.) Reichb. f.
(small tree) Local names: *áem* and *alím* (Tag.); *alím* (P. Bis.); *alám* (Ilk.)

Ballíwüt. *Ethretia polyantha.* R. Br.[157]

buboh. *Litsea* sp.

Pangkól. *Aralia bipinnata.* Blco.
(tree) No cognates were found.

pulínin or *pulílin*. *Hymenodictyon excelsum* (Roxb.) Wall.
(tree) No cognates were found.

Tambálaw. *Myristica philippensis* Lam.

Óah. *Harpullia arborea* (Blco.) Radlk.
(tree) Local names: *oas* and *poas* (Tag.); *úas* (Ibn., Ilk.)

The bolo is now so characteristic and so functional a part of the Negrito's culture that it is difficult toimagine what their life would have been like without this omnipotent tool. It would

[157] According to Reyes, this wood is commonly used in the Tagalog areas for the handle of bolos. Reyes, Luis J. Philippine Wods. Manila (1938) 426.

appear from Careri's observation,[158] that the Zambales Negritos have possessed metal knives and bolos for at least 253 years and probably longer. However, the use of metal is quit limited among the Pinatubo pygmies, being confined wholly to metal arrowpoints, tools used with the forge, bolo and knife blades, and to the homemade shotguns. Nevertheless, the efficiency obtained through using the bolo (only one type of a metal tool) has produced a tremendous change in the behavior of the pygmies. This change extends not only to economic activities, craftsmanship, and increased control over the environment, but also has had a marked influence upon their institutional structures and values. For example, the use of more efficient tools has provoked an individualism which is, at present, constantly conflicting with the basic communal organization of Negrito society. This will be discussed fully in another manuscript.

LEAVES USED FOR SANDPAPER

The polished surfaces found on the pygmies' bows and arrows, on the bolo scabbards, guitars, wooden eating plates, and on other objects, are obtained, in part, by employing the dried leaves of specific plants as "sandpaper." This is a widespread practice in the Philippines among both the Christian and Non-Christian people and the plants used for sandpaper by the Pinatubo pygmies are also commonly used by the surrounding people.

The leaves of the following plants have minute, stiff, silica hairs, and when dry, make an excellent natural sandpaper:

Aladíad of kalaháka. *Tetracera scandens.* (Linn.) Merr.
(vine) Local names: *alaríad* (Bot.-Sbl.); no cognates were found for *kalaháka*

Gihigíh. *Ficus blepharostoma.* Warb.

Tipli'. *Ficus odorata* (Blco.) Merr.
(small tree) Local name: *tipli'* (Bot.-Sbl.). This plant name is also the generic term for "sandpaper."

PASTES OBTAINED FROM PLANTS

Pastes, called *kóla'* (*kola*, Tag.), ar obtained form a number of native plants. These plant pastes have many uses; for example, to glue the sections of wood forming the guitar, to secure the glass windows in the water goggles, to hold together the two pieces of wood forming the bolo scabbards, to

[158] Reed, W.A. Negritos of Zamabales. Manila (1904) 29.

mend pots, to secure the points of arrows in the shaft, and to cement the blades of knives into the handles, and so forth. The following plants are also used by many other Philippine people for the same purpose, and there is nothing unique in their usage by the pygmies.

Anónang. Cordia dichotoma Forst.

The white gelatinous substance from the fruit of this small tree makes an effective light glue. This plant is also called *anónang* in Ibn., Ilk., Tag., Bik., and Bis.

Bangábah. Macaranga grandifolia (Blco.) Merr.

The red sap from the bole of this tree is used in gluing together the two sections of wood composing the bolo scabbards. No cognates were found for this plant name.

Bubóh. Litsea sp.

The outer bark of this tree is scraped to obtain an oily paste. This paste is used specifically to mend small cracks and plug holes in pottery vessels.

The Negritos make no pottery, although it is rather extensively utilized by some groups for cooking, and for storing drinking water. Moreover, insofar as I can determine, pottery is not made by the Sambal. The pottery found in the Botolan market (the source of the Negrito's pottery), as well as in the markets of the Sambal towns to the north, is made mostly in the Ilokano communities of southern Zambales.

Kóla'-babái.. Geodorum nutans (Presl.) Ames
Eulophia squalida Lindl.

The rhizomes of at least two ground orchids are commonly used by the Pinatubo pygmies for glue. The bulbous rhizomes are heated, cut into half, and then scraped until a sticky mass of paste is obtained. According to the Negritos, this is the very best glue, and is used exclusively when making guitars and bolo scabbards. Manuel Celstino, of the National Museum, reports an identical preparation and usage among the people of Cebu. The Negritos in the Fort Stotsenberg area (Clark Field), on the eastern slopes of Mt. Pinatubo, use the large rhizomes of a ground orchid, *Acanthophippium mantinianum* L. Linden and Cogn., for paste in the same manner. They also call this plant *kóla'.*