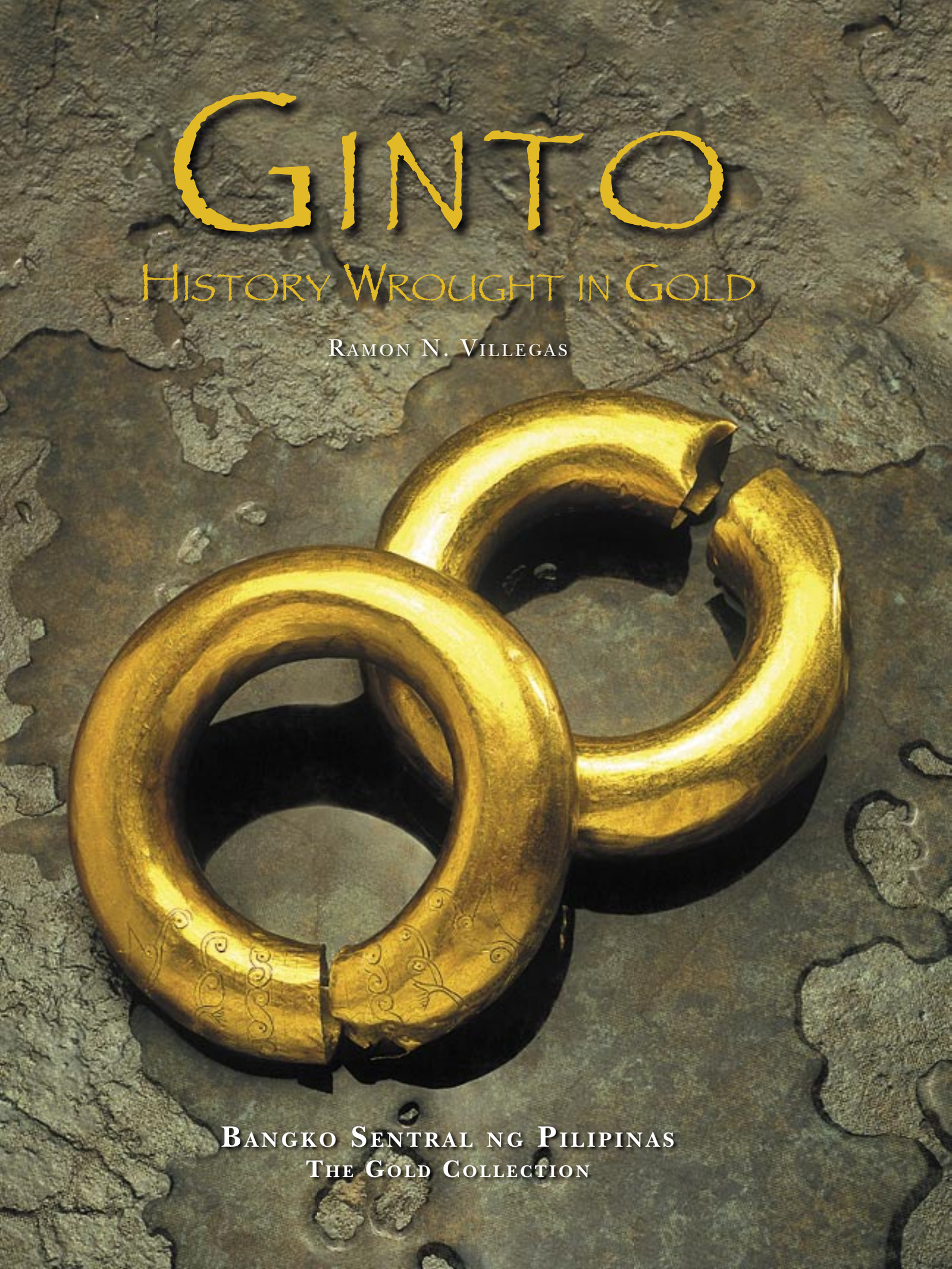
Ginto

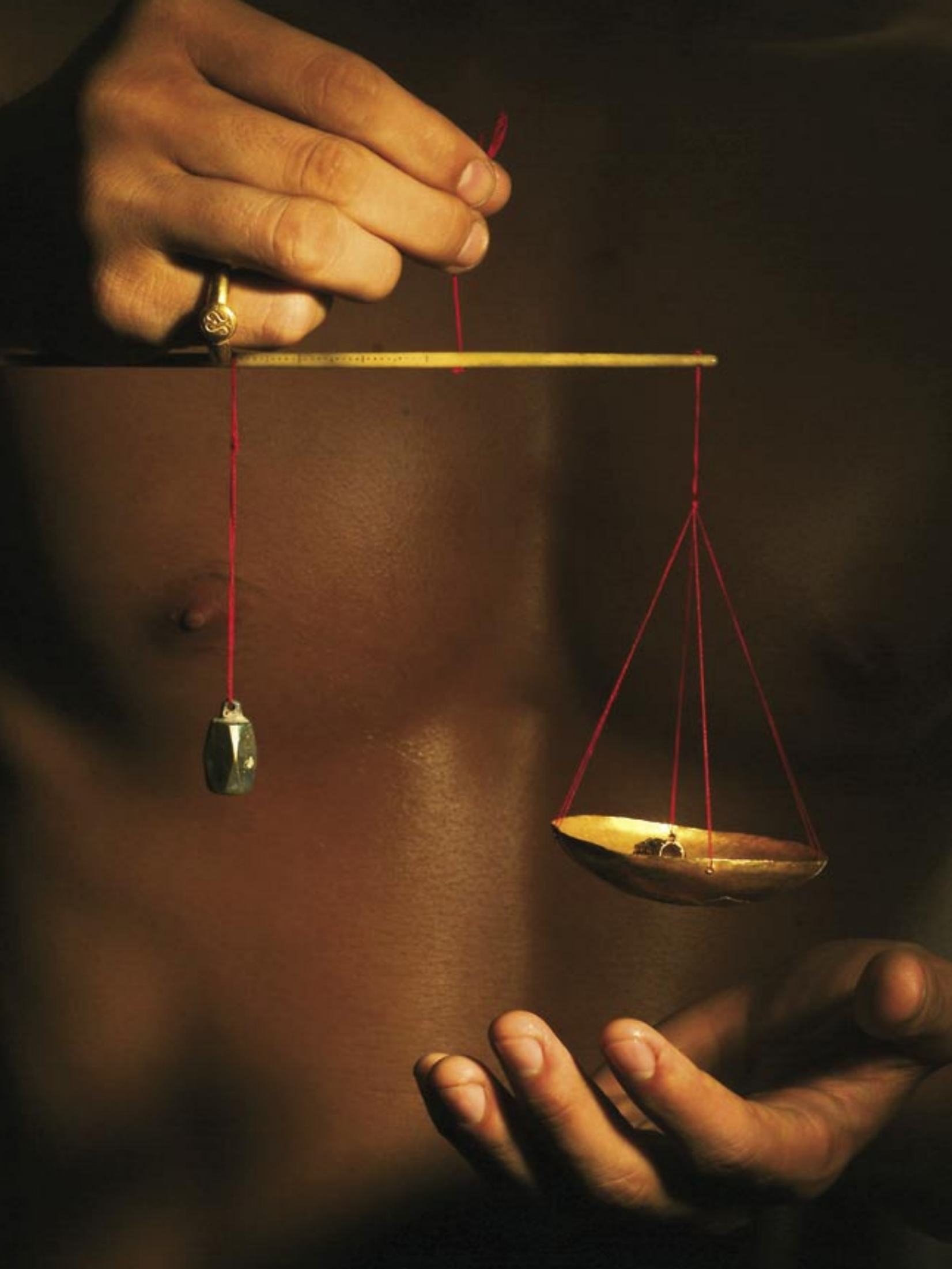
History Wrought in Gold

Ramon N. Villegas



Bangko Sentral ng Pilipinas
The Gold Collection


BANGKO SENTRAL NG PILIPINAS
1993



GINTO

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RAMON N. VILLEGAS

BANGKO SENTRAL NG PILIPINAS
THE GOLD COLLECTION

Printed in the Philippines

PUBLISHED BY
Bangko Sentral ng Pilipinas

ISBN 971-91785-9-0

www.bsp.gov.ph

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THE
BANGKO SENTRAL
NG PILIPINAS
GOLD COLLECTION

FOREWORD

The Bangko Sentral ng Pilipinas is a repository of the nation's wealth. It has the privilege and responsibility of holding the exquisite gold possessions of our ancestors as far back as 2,000 years ago.

These enduring treasures constitute the Bangko Sentral ng Pilipinas Gold Collection. What started as a collection to trace the evolution of our currency developed as one of the most important gold collections in the region. Then and now, gold remains a principal benchmark of value; equally important, the masterpieces of art wrought in gold are priceless symbols of our rich culture.

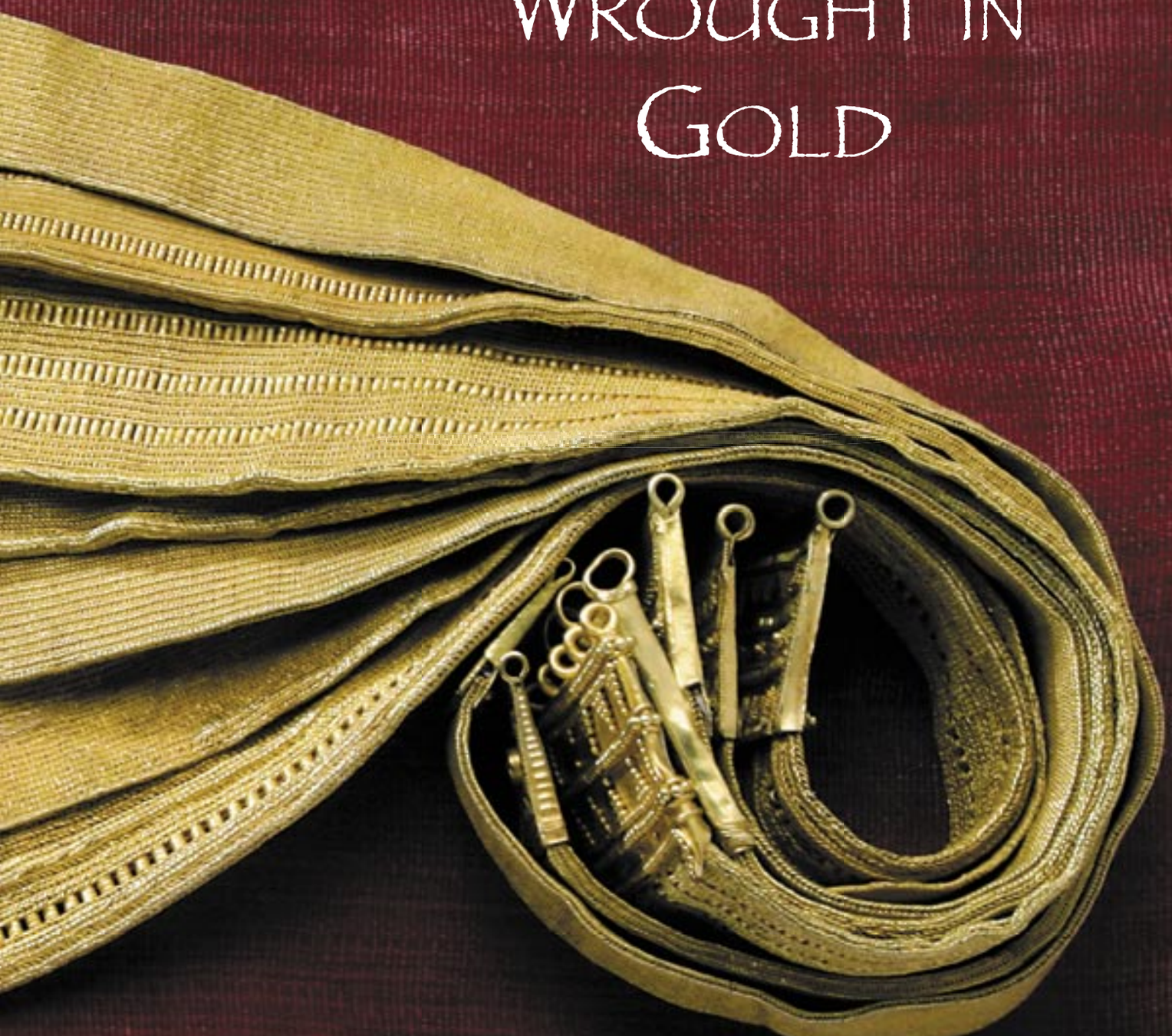
The Collection provides insight into a pre-Hispanic past we Filipinos should be proud of: a flourishing economy actively engaged in local and international trade; a distinct culture and art tradition that resulted from a fusion of indigenous and diverse foreign influences; and the artistry and technical ingenuity of our ancestors who crafted magnificent gold creations comparable to the finest done in other parts of the world.

Given its significance, the Monetary Board decided to undertake the documentation of the BSP Gold Collection through the production of a coffee table book, a catalogue, and their CD-Rom version. They complement the permanent exhibition of the Gold Collection at the BSP Complex in Manila.

We hope that more people will come to know and appreciate this remarkable legacy of gold. The BSP Gold Collection is a priceless gift from our ancestors. It is a gift that instills a strong sense of national identity from a shared glorious heritage.

Rafael B. Buenaventura
July 2004

History Wrought in Gold



Above: Looming out of the past is a terra cotta larawan in memory of a ninuno, or ancestral figure, wearing a putong or headdress. His earlobes are pierced for huge earrings. His chest, arms and even the soles of his feet are inlaid with gold. Batangas, associated with Late Metal Age (200 BC-1000 AD) material.

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A Golden History

THE SURIGAO TREASURE

In 1981, a cache of prehistoric gold was accidentally uncovered by a bulldozer operator known only as 'Berto,' in sitio Magruyong, San Miguel town, near Tandag, Surigao del Sur. He was moving part of a 30-foot high hill, filling in marshy ground to define an irrigation channel. He noticed glinting metal flying into the air with each sweep of the shovel. Worried that he might have hit ore or buried wreckage which could damage the equipment, he idled the motor and went down to investigate. The glinting metal turned out to be gold jewelry. He grabbed a sack, and stuffed it with as much as he could, not even bothering to turn off the bulldozer. The other workers saw him and started to claw away at the soil.

As darkness fell, residents in the area went to investigate why the bulldozer was left running. The story got out. Within days, hundreds of treasure hunters were digging up the site.

Berto had gone to a priest whom he trusted, and who eventually accompanied him to Manila. They hailed a cab, and told the driver they wanted to go to where antique shops were. The driver, sensing them to be hicks, took them for a ride, but in the end deposited them in Ermita. By luck, they ended up with an old hand at excavated material, who was able to deal the pieces.

The accidental find consisted of not less than 15 and up to 30 kilograms in total. The retrievers divided some of the loot simply by hacking them in half. Pieces were sold to scrap gold dealers. The more knowledgeable sold pieces to antique dealers and collectors.

With the hindsight of two decades, we can now conclude that private collectors were able to acquire around forty per cent of the find, and some thirty per cent was purchased by the Bangko Sentral. The remainder was irretrievably lost to the melting pot (Villegas 1983: 196-197).

TREASURED FIND

It is impossible to overestimate the artistic and historical value of what has come to be known as the Surigao Treasure. Why the rich trove came to be there at all we may never know. We can only surmise on the cultural background of those who had wrought and interred the gold artifacts. We can relate them to the gold miners in Surigao del Norte, and those of the Diwata mountain range that divides Surigao from the Agusan provinces. We must also relate them with the seafaring-trading state on the Butuan estuary which included power over a vast maritime zone.

But the Surigao Treasure, while spectacular, is not singular. Gold ornaments have been found, and continue to be found, by professional treasure hunters as well as fishpond diggers in Butuan, farmers in Samar, boatmen along the Pampanga River, canefield workers in Batangas, and archeologists. The artifacts are among the most aesthetically pleasing ever conceived. They are technically sophisticated, and called for intensive knowledge and expertise in geology, metallurgy, physics, chemistry and other sciences.

Gold, the eternal metal, has an intensely historical role in the region. Miksic, a scholar on Southeast Asian gold, points out that in the region "ancient jewelry may claim the potential to contribute historical knowledge of unusual significance compared to other parts of the world…Southeast Asian scholars lack many of the sources for studying the past found elsewhere; this is due to the widespread use of organic materials, climatic conditions, and the attitudes of the cultures themselves toward ancient artifacts and the past…"

Moreover, because gold ornaments were part of our ancestors' bodies and integral to their lives, Southeast Asian, and particularly, Philippine gold artifacts offer us an intensely personal connection with them, and gives us an incomparably intimate look at their society.

PERIODIZATION

In the following essay, the stylistic development of gold artifacts, so far dateable to within 500 BC to AD 1600—or up to 2000 years before European contact—is discussed. Dating is based on the small body of "scientific"—archeological and documentary—evidences, as well as the larger body of "unscientific" information from clandestine excavations.

Very few gold artifacts in Southeast Asia have been systematically recovered. Much has been made of the "disturbed" condition of Philippine archeological sites, and the unreliability of the currently accepted dating of Philippine gold artifacts. However, most classic Southeast Asian gold ornaments, even in the oldest and most respected collections, have been found in "hoards" and "caches", "by chance" and "accidentally." Time and publication have lent them the patina of repute, but they are of equally disputable provenance.

Thus, gold artifacts in the Philippines have been dated by convention: that is, based on oral history retained within circles of treasure hunters, purveyors of antiquities and art collectors. Like it or not, they have a comprehensive grasp of more ancient materials than most scholars. Their unstructured information have been compiled here. In the future, these may be independently and more scientifically verified.

Groups at varying levels of cultural development existed contemporaneously and interacted.

The probable progression of technological and stylistic innovation, based on documentary evidence and oral history as well as linguistic, archeological, ethnographic, and other anthropological studies emerges from the discussion.

Scholars who have attempted to derive typological chronologies of Southeast Asian gold traditions have used two distinct approaches, sometimes in combination. One approach derives a timeline through comparison of artifacts with the handful of archeologically retrieved material. Another has attempted to group objects chronologically on the basis of the 'internal evidence' of technique and style. But their proposed periodizations have been sustained with difficulty.

Such linear schemes of cultural progression oversimplifies the reality of Southeast Asia, where groups at varying levels of cultural development existed contemporaneously and interacted. Also, a creative burst of technology may have been followed by a slow, drawn-out decline. Sophisticated masterpieces may have been followed by "primitive" works. This essay, then, takes a look—with a jeweller's eye—at the technology of ancient Philippine gold without attempting a periodization based on technique.

The discussion utilizes both contemporary Manileño goldsmith terms as well as the words of older and other Philippine languages.

DIFFUSIONISM

Up to the discovery of the Surigao Treasure, there were those who insisted that the gold artifacts being found in the Philippines were imported.

Before the 1960s, the development of complex societies in Southeast Asia was attributed to influences from the more complex civilizations of India and China, which transmitted advanced technology and political structures by migration, cultural diffusion, or outright military and political imposition.

But these attempted reconstructions of the Southeast Asian past were in general distorted, often contradictory, and barely tested archeologically. Historical, anthropological, or geographical reconstructions with empirical basis were, in large part, derived from the study of recent phenomena and relied upon backward extrapolation spanning a millenium or more.

There were those who insisted that the gold artifacts being found in the Philippines were imported.

The early 20th century anthropologist H. Otley Beyer reconstructed Philippine prehistory in terms of waves of migration. Beyer firmly believed in the 19th century Darwinian theory of evolution and the development of the human races. He hewed closely to the German and Vienna schools which posited the diffusion of cultures by migrants from centers of culture such as China, applied in Southeast Asian studies primarily by Heine-Geldern.

Subsequent scholars disagreed with Beyer's scenario, which did not allow for variant social and cultural development in reponse to local situations. They concluded that Philippine prehistory is far too complex to be explained by waves of migration (Jocano 1967; Evangelista 1967).

Dr. Robert B. Fox (1967, 1970) established a sequence substantiated by controlled and stratigraphic archeological research, from which he derived a chronology that he applied to prehistoric Philippines in general. He outlined four broad cultural ages: "the paleolithic age and the neolithic age with early and late periods and phases; the metal age with early and developed periods and phases; and the age of contacts and trade with the East" (Fox 1970: 1). These were based on the development of tool industries, but inexplicably shifts focus to porcelain receptacles as his diagnostic basis with his Age of Trade and Contacts.

Other scholars, particularly Jocano (1975), Hutterer (1977) and Solheim (1981), insisted on the primacy of sociological and cultural over technological development, reasoning that the object of history is man and society, not things and technology (Villegas 1983: 190-192).

NEW HISTORY

In the light of research over the last two decades, it is now possible to dismiss the diffusionist theories, or at least accept them with a lot of qualifications. The earlier, simplistic explanations on the rise of complex societies in the region

have been replaced. Scholars of Southeast Asia have recently provided a tighter, though still controversial chronology for events in the first millenium BC. The models now are drawn—through anthropology and economics—from the "new archeology," and emphasize internal cultural processes and evolution.

Such models "ideally consist of a set of relationships between variables to which more or less precise numerical values may be assigned. The relationships apparent between these variables then allow for some explanatory or predictive conclusions to be made about the data set from which the variables and their values are drawn" (Bayard 1992: 14). Archeological data will always be limited, and writers must work with "generalizing scenarios".

Newly uncovered cultural material, historical evidences and theories in the last quarter century have similarly led to the reappraisal of prehispanic Philippine culture and technology. This may be attributed, in part, to the willingness of some scholars to look into directions suggested by the huge amount of artifacts collected by treasure hunters, which some archeologists had refused to deal with, and which most historians can't make heads or tails of. While still wary of cultural material not scientifically collected, there is a willingness to study them, at least to see if they can suggest the lineaments of a model which can be scientifically verified by further research.

It was the late Filipino historian William Henry Scott who was most successful in pushing backward the limits of history, particularly in his last opus, published posthumously in 1996. Aside from uncovering fresh documentary sources, Scott utilized linguistics, ethnography and ethnology, as well as antiquarian studies to bring the prehispanic Filipino into focus.

The diffusionist prejudice had led writers to assume that the Philippines was historically isolated, culturally passive and artistically provincial, and technologically backward. Previous scholars denied the Philippines a classic age, an era of political, economic, and social progress. Nor did they admit the possibility of a period of cosmopolitanization, when primary and scientific development would have occurred, determining the forms of material culture, laying the foundations of traditional technology, and also determining the cultural characteristics and identity of a people in subsequent centuries.

The rougly 1000 year span with which this study is concerned was a classic age for the Philippines, and its history was wrought in gold.

The object of history is man and society, not things and technology (Villegas 1983: 190-192).

GOLD RESOURCES

Gold was always a rare metal, but the volcanic action that formed the major features of the Philippine plate—mountain ranges from north to south—produced plentiful gold (Lyons 1979: 345; Patanne 1977: 361).

Relative to its small land area, the Philippines today continues to be a major world producer of gold and copper. The country is second only

to South Africa in gold production per unit land area (one square kilometer). About 60% of official production comes from epithermal veins; the remainder comes from disseminated porphyr copper-gold deposits. Lode and placer gold is found throughout the archipelago and most of the country's 73 provinces have yielded some gold. The principal gold producing districts today are Baguio (Northern Luzon), Paracale (southern Luzon), Masbate (Bicol) and Surigao (Northern Mindanao).

According to the Mines & Geosciences Bureau, the Philippine gold-bearing mineral reserves was estimated at 162,764,000 metric tons, with an average grade of 2.468 gms of gold per metric ton. (Tujan and Guzman 1988: 16, Table 1).

Mining was particularly intense during the early 80s. Gold rushes offered hope in the face of the harsher economic conditions at that time. In her 1985 study of Kabayan, Benguet province, Wiber observed that "42% of the landless Kabayan households are involved in either placer or lode mining during the rainy season" (Caballero 1996: 83). In 1989, an estimated 150,000 to 300,000 people were engaged in small-scale mining, exceeding the 55,600 people engaged in the large mining sector.

Total gold production peaked between 1985 and 1987, at more than 30,000 kgs annually. Gold production has decreased since 1987. (It ranked 7th in gold production in 1988, was dislodged to 13th in 1992, and down to 17th in 1997.) However, panned gold peaked later, between 1994 and 1996, at more than 10,000 kgs., compensating for the decline in production from large-scale producers. Although reports from small-scale mines are incomplete, the share of gold production from panning and small-scale mines has been increasing consistently, reaching a share of more than 50% of total since 1995. Overall, present production is not even comparable to the level in 1975 (Tujan and Guzman 1998: 24-25)

Following is more recent data from the Mines and Geosciences Bureau:

Philippine Gold Production

Yr.	Production (MT)	World Ranking
1998	34.049	
1999	31.107	
2000	36.540	
2001	33.841	26
2002	36.005	29
2003	39.156	

The Philippines declined in world ranking, and was overtaken in Southeast Asia in particular by Indonesia, because of our outmoded laws on mining, which limits ownership of mining ventures to Filipino nationals. Thus, large-scale gold mining in the Philippines has been only been marking time.

Interestingly, the Gold Refinery of the Bangko Sentral ng Pilipinas has been buying an increasing amount of gold from small-scale producers, as shown by these figures:

Yr	Gold Purchases (MT)
1992	7.8
1993	9.6
1994	12.7
1995	14.7
1996	16.1
1997	14.6
1998	20.8
1999	18.0
2000	22.3
2001	24.3
2002	29.7
2003	32.6

MINING TECHNOLOGY

Western scholars, primarily H. Otley Beyer, theorized that metal technology—including the mining and working of gold—in the Philippines was part of the cultural diffusion caused by the movement of people from South China down to "Indo-China." The latter term was itself a creation of diffusionist prejudice. Beyer postulated three external sources of the metal tradition: Chinese, Indian and Javanese. Iron, lead, gold, and silver were introduced, according to Beyer, by the Chinese as articles of trade, while brass, bronze, copper and tin came from Indo-Javanese sources. The technology for mining and smelting these metals was believed to have the same origins.

To support his over-all theory, Beyer maintained that Chinese and Indian technology for mining, smelting and metallurgy were applied in the Paracale-Mamburao-Labo areas (Camarines Norte), the Gumaus Peninsula, and the Aroroy district in Masbate, the Agusan-Surigao region, and Cebu. Beyer cited the discovery of metal molds, old mine workings, and tools which were "either Chinese or Indian" (Lopez 1992: 8-10).

Postwar and post-colonial writers have rejected such applications based on the principles of cultural diffusionism. How does one conclusively prove for example, whether the technology for smelting and forging iron, and the 'Malay Forge' are borrowed or original inventions? F. Landa Jocano and other writers, while acknowledging external influence in mining metals, also advanced the idea of locally engendered technologies.

Recent studies have theorized that traditional societies tended to focus on the metal where they were most efficient. In the case of the Philippines, it was gold. Bronson notes that all other metals except gold came from abroad despite the fact that the country is also rich in iron and copper ores. The first conquistadores in the 1570s noted that the Manila area was already getting its copper, iron and tin from Chinese traders. Although copper and iron smelting must have existed at the tribal level in unpacified parts of the Philippines, for more than 300 years neither the Spaniards nor their colonial subjects made any use of the vast reserves of copper and iron ores that lay beneath their feet.

The Philippines may also be the only part of the region that ever had gold deposits that could be called truly large and rich

Many parts of Southeast Asia have been known, at one time or another as gold producers: northwestern Luzon, northeast Mindanao, West Sumatra, West Kalimantan, parts of Malaysia and the Kra Isthmus, northern Burma, central and northern Vietnam, and many places in Thailand and Laos. But as Bronson points out, "The majority of these still produce small amounts of placer gold, but only the Philippines with its auriferous copper ores is (throughout the 20th century) a significant producer in the modern world …The Philippines may also be the only part of the region that ever had gold deposits that could be called truly large and rich…Minor gold strikes must have occurred in many areas…"(Bronson 1992 83). Most of the metal must have been retrieved through placer mining.

MINING PROCESSES

Placer mining methods are described by Laurence Wilson in **Igorot Mining Methods**: "At the beginning of the dry season the men open up and repair or rebuild the sluice…the rough surface of the old rock of the river channel serves as the bottom of the sluice box…a part of the stream is directed into this 'box ' and the gravel deposited (by) the high water during (the rainy season), sluiced through, the heavy gold sinking to the bottom caught by the natural riffles formed by the crevices in the rock bottom. These riffles are then carefully cleaned out and the contents panned by women in the same manner."

The Igorot miner had to expend more labor in lode mining, although he used simple tools. He broke down the rock by building a fire against its face and dashing cold water on the heated surface. He carried out the ore in baskets, or drayed it out in larger baskets or boats made of hollowed logs. The Igorots worked in and down the earth as far as they could, driving tunnels many meters long and putting in raises or shafts, until stopped by very hard rock or water.

The Spanish pioneers found mines at Masbate worked to a depth of one to two estados (3.4 to 6.8 m), and those of Paracale in Camarines to a depth of 30 to 40 estados (50 to 70 m) (Lopez 1992: 555).

Bowring described pit mining in Caraga, Mindanao: "they cut in the top of a mountain a basin of considerable size, and conduct water to it by canals made of the wild palm; they dig up the soil while the basin is filling, which is opened suddenly, and exhibits for working any existing stratification of gold…"

Eddingfield, writing in the 1880s on mining in the Cansuran district of Surigao, northeastern Mindanao, "While the methods employed by the natives were very crude, they were able to recover a large percentage of the gold from the gravels. They carried water, sometimes several hundred meters by means of flumes made of the bark of trees, the most durable flumes being made of palma brava…The water was led to the top of the face of the gravel to be worked and allowed to flow through it…The light material was allowed to wash away, but the gravel which accumulated in the trench, was raked and picked by hand and finally thrown up on one bank with coconut shells…In places where water could not be obtained, tunnels were driven along the bed rock and rich gravels carried down to water and panned…"

Auriferous rock is broken down to the size of gravel with the use of two stones, one of which serves as an anvil, the other as hammer. The anvil, which is slightly hollowed at the center, is laid flat upon the ground; and the hammer is fastened with rattan to the top of a slender young tree. The workman with a jerk forces the stone hammer down on the auriferous rock, the elasticity of the sapling raising it again for a fresh blow (Lopez 1992: 570)

Among the Kankana-ey and Ibaloi, recovery of gold from broken down ore or gravel was largely the work of women (Caballero 1996: 172-173) who physically separated gold from the ore through milling, gravitation and panning. They used a series of basalt grinders and mortars to mill gold. Larger basalt mortars are called **alintegan**, while the grinders are called an **alinteg**. To grind the ore into a powder-like consistency, a flat basalt stone called a **gaid** is rolled across flat basalt mortar called a **gaidan.**

In the gravitation phase, water is added to the powder to achieve a 70 percent consistency in the slurry **(linang).** Water is sluiced through the slurry, to separate the mud and lighter materials from the gold-bearing materials; then the material is panned, and gold is separated by sight. The process is repeated several times.

Sometimes the juice of the leaf of the **aglayan** plant or of dampened tobacco was squeezed in the water while panning. This caused the fine floating gold to sink to the bottom. According to the German scientist Jagor, who observed mining processes in the late 19th century, "At last (the gold) undergoes the final concentrating process in a coconut shell; a soapy vegetable sap extracted from the **gogo**, a climbing mimosa (**Entada purseta**) is added to prevent the fine gold dust from floating."

Traditional Igorot miners then wrap the gold grain **(ngamoy)** in a twist of paper, sprinkled with borax (if this is not available, salt), and placed in an earthenware crucible **(gangi).** The metal is smelted in an open furnace **(lagangan)** filled with charcoal. The furnace is a rectangular box about 60 cm deep. An iron tube about a meter long and 6 cm in diameter is used to direct

the air produced by bellows. When smelting is complete, the charge in the earthenware crucible is poured into a container, cooled, and the slag knocked away, exposing the ingot. The gold is weighed on a scale **(subucan)** and sold to a dealer (Caballero 1996: 131-132; 166-169).

CORDILLERA MINING

Igorot culture offers us an idea of some of the features of prehispanic mining society.

Morga, in his **Events in the Filipinas Islands**, "On the slopes of the mountains, in the interior, live many natives, as yet unsubdued, and against whom no incursion has been made, who are called Ygolotes. These natives possess rich mines, many of gold and silver mixed. They are wont to dig from them only the amount necessary for their wants. They descend to certain places to trade this gold…with the Ylocos; there they exchange it for rice, swine, carabaos, cloths and other things they need" (Morga 1609:102). A 17th century account notes that "The Ygolotes descend to certain towns of Pangasinan with their gold, and exchange it for food—hogs, carabaos, and rice, taking the animals alive to their own country. Until that food is consumed, or but little time before, they pay no heed to securing any gold. Then each man goes to the mine assigned to him, and they get what they need, according to what they intend to buy, and not any more. They are…void of covetousness…for they say that they have it there for the times when they need it" (De la Vega 1609: 302). In 1616 Governor-general Fajardo in his letter to the King reported, "the Ygolotes were extracting only what they need" to trade for provisions like cattle, salt and iron."

In the early 1620s, the Spanish colonial government attempted to take control of the Cordillera mines of the Kankana-ey and the Ibaloi. Quirante (1624) explored the Itogon area, and located Antamog (today the Antamok Mines of Benguet Corporation), which had the longest of all the tunnel systems he visited. He also explored the nearby Conog mines (now the modern Itogon-Balatoc mining area).

Quirante concluded, however, that the mines' richness was exaggerated and incorrect. The Audiencia of Manila decided to abandon further attempts based on his report. But because of dire financial straits and other, persistent reports, the crown continued to pressure the clergy to help locate local gold mines. But the religious were reluctant, because of abuses that had been inflicted on native Americans, and those they themselves had seen inflicted on the Igorots.

It was only in the 19th century that the Spaniards made significant progress in subduing the Igorots. For most of the Spanish colonial era, the Igorots continued to live their lives as they always had. It was the Americans who were able to fully exploit the mineral wealth of the area.

Scott notes, "Gold is mentioned in early Spanish accounts more than any other substance, evidence not only on their interest in it but of the fact that they found it everywhere they went. They seem never to have seen a Visayan without gold on his person, and said that all of them could tell where any gold came from just by looking at it. But the Spaniards were surprised at the low intensity of Visayan mining operations: the Visayans only went to get it as needed."

Tegengren estimates that the total output of the Philippines from placer and pit mining from 1350 -1899 was about 80,000-90,000 kilograms. This quantity is not large, it is smaller than aggregate production by modern methods during this century. In his words, "It offers a striking contrast to the enormous quantities yielded by the mines and placers of Spanish colonies in America, and unlike the latter it did not contribute to swell the mother country's treasury" (Tegengren 1963: 575).

The Spaniards were frustrated and puzzled by the attitude of the Filipinos. According to Rada: "No one of these Indians has more than a little gold, for if they get a couple of earrings and a couple of bracelets and a pair of anklets for their feet, they do not look for any more, for they do not strive to hide it." Another chronicler observed, "Although there are many mines and much pure gold, yet the natives do not extract it until the very day they need it; and even then they take only the amount necessary for their use, thus making the earth their purse"

Rizal pointed out that Filipinos were not about to dig gold out just for the benefit of the Spaniards.

While "In many places where we know that mines exist, the natives do not care to work them, because they say that their god orders them not to take out the gold except on the arrival of foreign vessels for purposes of barter. They strike a bargain with those foreigners and allow them to work in the mines for a period agreed upon." In the mining areas observed, "…gold digging was not a specialized profession…There was little division of labor; the people were agriculturists…gold mining was engaged in spasmodically, on certain occassions as demand arose, and by practically every member of the household, old and young. Such occasions were particularly the visits of foreign trading vessels, when gold was needed for purchasing (imported commodities)" (Lopez 1992: 567)

They also noted that "Since the arrival of the Spaniards in the land, the natives proceed more slowly in this (gold production) and content themselves with what they already possess in jewels and gold ingots, handed down from antiquity and inherited from their ancestors" (Lopez 1992: 558, 563)

It was Rizal, in his annotations on Morga's history, that pointed out that Filipinos were not about to dig gold out just for the benefit of the Spaniards. Besides, "They would rather keep it below the ground than in cashboxes", Juan Martinez said in 1567, "because since they have wars, they can steal it in the house but not in the ground." The "wars" referred to included Spanish incursions. For the Filipinos of that time, gold had significance and function, but they were not willing that the cause of enslavement to foreigners be one of them.

It was only the Ibaloi and Kankana-ey, and miners in places just as remote, that continued to extract gold, surreptiously slipping down to the lowlands to trade the metal for their necessities and luxuries, just as their ancestors had done since time immemorial.

MINING SOCIETY

Igorot traditions give us an idea of animist beliefs on mining , and the social norms imposed by those beliefs.

Customs and traditions promote the proper management of resources and community unity. Among the Kankana-ey, rituals function in part to regulate the over-exploitation of gold during periods of abstinence (**ngilin**). The **ngilin**, which may take from one day to several weeks, proscribes work at the mine, sexual intercourse, the eating of certain foods, and others. If the wrong meat is eaten, the miner must abstain from mining for four days and then bathe before entering the tunnels. Rituals to appease the gods who own the mines have to be performed so that they may share their gold with the living.

It is the role of the elders to see to it that the taboos are not broken and the proper rituals are held so that their deities and anitos may look favorably upon the community and their mining and other livelihood activities. (Caballero 1996: 82-83)

Kankana-ey traditional miners believe that the god Kabunian and the anitos (spirits, ancestors) own mineral resources. The spirit world of the Kankana-ey have a five-tier hierarchy. Below the god Kabunian are seven secondary gods, including Agew (sun); Buan (moon) and so forth. The third level consists of ten female and ten male anitos. The fourth level of anitos are the **tumungaws**, spirits who can be found in the swidden fields, gardens, and mine tunnels. They own the gold and other natural resources. The fifth level are the spirits of ancestors.

Filipinos were not willing that gold be a cause of enslavement to foreigners.

The group of elders or **panglakayan,** who are present among the living and in the spirit world, own and manage the primary resources of the community. They resolve conflicts regarding mining, adjudicating over disputes and imposing penalties on the parties at fault. They assign rights of usufruct for subsurface mining and land for swiddening, and recognize inheritance rights.

Wiber notes that placer areas were considered a public resource, while lode mines were individually owned. A mining area accommodates 150-200 workers—men, women and children. Individuals or groups of individuals who originally invest significant labor to develop tunnels are said to have superior rights (including inheritance) to those tunnels, as with irrigation canals. As with water from the irrigation canals however, no one in the community expects to be turned down as a participant in mining and in the proceeds (Wiber 1991: 483-484).

But community members own only the gold which they mine and the crops which they grow. A miner's use rights cease once he or she abandons a tunnel. Other individuals may acquire temporary-use rights by affiliating themselves with the corporate kin group. Only consanguines and affines can participate; strangers are always accompanied by a family member.

Traditional small-scale miners say that "There will always be gold. We will never run out of gold, but you have to mine it the right way". Mining the right way involves not only technology, but social behaviour and ritual patterns. The deities and the anitos give the gold and other natural resources to the community. The **panglakayan** continue to play a predominant role even in the spirit world, but as **anitos**. As **anitos** they are called upon for proper guidance, invoked for good fortune and appeased through rituals. As the elders before shared their gold and other natural resources with the living and made them prosperous and healthy, so too must the living share it with the rest of the community" (Caballero 1996: 169-172).

There will always be gold. We will never run out of gold, but you have to mine it the right way.

The living share gold through **sagaok**, which Caballero describes. "Men and women of varying ages line up…to get their share of gold ore **(makisagaok)…** Ore is always given first to the elder women and men…It is important that the miners share a portion of the ore which they are mining…" Another way of sharing gold is through **makilinang**, the practice of sharing ore concentrate.

When a miner finds high-grade ore, ore with gold nuggets has to be given to the elders of the community **(panglakayan).** The quantity of ore given out will depend on the productivity of the miner's tunnel and the number of those requesting it. The elders (**lallakay**) and those held in the highest esteem are expected to be given more share of the gold. In addition to sharing the gold with the community, the miner has to hold a **canao**, where several pigs are offered to the deities and anitos.

GOLD RECORDS

Such technology and the social traditions that sustained it developed over a long period of time. The facility of working gold and its esoteric significance were factors that brought about its early utilization.

Based on archeological evidence, gold artifacts appeared as early as 400 to 250 BC in the Philippines. Other metals such as iron and bronze also made their appearance in Philippine prehistory at this time. Significantly, the first metal artifacts of meaningful number to appear in early Philippine cultural strata are of gold.

The earliest written reference to gold in the Philippines is in the Laguna Copperplate Inscription (LCI), a document dated 900 AD inscribed on a sheet of metal, now in the National Museum. The document absolved the heirs of a high-born personage of a debt consisting of a large amount of gold.

There are references in Chinese records particularly in **Chu Fan Chi**, written around 1209-1214 by Chao Ju-Kua, a Chinese port official. Chau reports that the Song dynasty Emperor T'ai Tsung (976-997 AD) had sent his officials to the southern seas to establish trade relations. In exchange for pearls and other gems, spices, medical substances, rhinoceros horns and elephant tusks, the Chinese gave gifts of gold and silk to the leaders of the southern countries. Chau mentions Mindoro as a place where gold and ironware were sold and then traded in other islands

On the other hand, he also mentions an "Arab" ship from Ma-I (Mindoro) carrying on the trade, arriving in Canton in 982 AD. Gold is noted as one of the items carried by that ship.

These contradictory passages have mystified scholars. The Philippines produced gold, and China didn't: so why were Chinese traders selling gold to gold producers? Scott suggests that the subject of gold trade was too illicit in the Chinese empire to be reported accurately in Chau Ju-kua's **Chu Fan Chi.** Also, the ancient Filipinos might have been exporting to some areas, and importing finished gold or acquiring it as payment elsewhere (Caballero 1996: 9)

Nevertheless Chinese reports in general state that the Philippines produced gold and exported it. In his **Tao I Chih Lueh** (1349) Wang Ta-Yuan mentions mentions that during the Yuan dynasty (1279-1368 AD), pure gold was one of the items China imported from Sulu. Laufer (1907) also quotes from the **Wu hsio pien**, a history of the Ming dynasty, that "Luzon produces gold which is the reason for its wealth…"

Laufer, citing the **Ming shih** or Annals of the Ming Dynasty notes that there were three official delegations from P'ing-ka-shi-lan (Pangasinan) sent to China in 1406, 1408 and 1410 during the reign of Yung-lo. In 1410 Ko-ch'a-lao brought gold as the main gift of exchange.

Keesing (1962) points out that communities in the Philippines were trading for centuries with Chinese and Japanese traders along the coasts of various islands. Imported items were "cloth, porcelain, beads, worked and unworked metal, while exported items were gold, deerskins, carabao horn, beeswax and fibers." (Keesing 1962:15). "Raw gold was a regular trade item between the Filipinos and the Chinese or Japanese traders in the lowlands along the west coast, and most of the product probably left the country." (Spencer and Wernstedt 1967:3).

Artifactual data give us an idea of early trade patterns and gold-working sites. Of particular interest to this study is northeastern Mindanao.

ARCHEOLOGICAL BUTUAN

Modern-day geological surveys and mining statistics indicate that eastern Mindanao has extensive gold resources. Gold production patterns and ethnolinguistic boundaries described at Spanish contact, which may have changed little since the first millennium, are still discernible today. The Mandaya and Manobo peoples inhabited interior, upland areas, and mined and traded gold for coastal goods, including imported products. Today extensive large and small-scale mining are done along the Diwata mountain range. The most extensive is at present is further south, in Diwalwal, Davao. Meanwhile the Butuanon and Surigaonon peoples established littoral settlements around the northeastern Mindanao coast and controlled maritime trade not only on Philippine seas, but routes north and south of the archipelago.

Discoveries unparalleled in Philippine and Southeast Asian archeological research were made during National Museum excavations from 1976 to 1986 in Butuan City, northeastern Mindanao. The startling feature of tthe excavations was the discovery of eight locally-made boats (balangay) capable of long-distance voyaging. In the same vicinity were found raw and wrought gold, and tools. The results lead to the conclusion that "one of the main reasons for the presence of a large protohistoric population center in Butuan was…the large-scale exploitation of (gold)." (Ronquillo 1987: 75-78; ASEAN Report 1987).

Archeological sites in Butuan were discovered when laborers constructing dikes for the fishpond of Dr. Miguel Navarra of Ampayon, Butuan, unearthed porcelain wares and wooden coffins for secondary burial. Dr. Navarra brought some artifacts to Fr. Francisco Demetrio, S.J., Director of the Folklife Museum of Xavier University in Cagayan de Oro City for identification.

Linda Burton, who was assisting the archeological program of the university museum, decided to investigate the Navarra find after consultation with the National Museum. The archeological excavations were fully supported financially by the City government of Butuan under the administration of Mayor Figurado Plaza, with the cooperation of the City Engineer's Office under Engineer Proceso Gonzalez.

The initial excavation was conducted by the Xavier University team during the semestral break in 1975 in the Navarra site. During the Christmas break, work was continued at the Punta site, which turned out to be a house site because of the presence of a kitchen-midden and numerous houseposts. Skeletons without coffins were found interred between posts with associated grave goods, e.g. jewelry (gold and shells), Yuan period porcelain wares, and wooden implements. Outside the perimeter of the houses were skeletal remains in wooden coffins, associated with blue and white Ming wares.

In the summer of 1976, the first archeological Summer Field School was held in the Suatan with the support of MSU and the Ford Foundation.

Participants were from Xavier University, Mindanao State University at Marawi, Urios College, and the National Museum.

In Suatan, two periods were distinguished: the habitation site (SU-2) was earlier, as dated by the acid racemization calibration to be 640 years or around 1337 AD to be exact. This date places SU-2 in the Yuan period (1271-1368). SU-1, a coffin burial site, was used between the 15th and 16th century, or the Ming period. The archeologists observed that most of the crania showed some deformation, that is, flattening of the frontal and occipital regions aside from teeth filing and blackening. These practices were not obvious among the cranial samples found in SU-2 (Burton 1977).

BALANGAY

A few months after, in 1976, a large boat was accidentally discovered by antique hunters in Ambangan, Libertad and excavated by the National Museum. The discovery of **balangay**, vessels capable of long-distance sea voyages, is a milestone in Philippine archeology. According to Pigafetta, the Italian chronicler who accompanied Ferdinand Magellan, balangay were large boats, measuring up to fifty feet, resembling the Spanish fusta, a two-masted sailboat.

The first balangay, uncovered in a dried-up river channel, measured about seventeen meters long and two meters wide at the center. The balangay were made of **dungon (Heritiera litteralis)** wood planks which were fitted together by wooden pegs. The seams were plastered with tree sap for waterproofing. It is now on display at the local museum beside the excavation site. The vessel has been dated by radiometric dating to 320 AD by the Tokyo Gakushuin University, and thus pre-dates the relics of Viking ships in European museums.

This was followed by the discovery of a second boat about one kilometer away from the first one. Wood samples taken from the second boat resulted in an absolute date of 1250 AD. To date, eight (8) boats have been recorded, one was exposed by the previous city government but was left underwater (Balangay V) since 1985, and one has been completely destroyed by gold panners due to their panning activities (Balangay VI). Two others measured more than fifteen feet long.

The presence of these boats in the site is clear evidence that the inhabitants of Butuan were sea-farers who must have covered long distances of travel in pursuit of trade and commerce.

Gold panners in the Luna, Plaza and Burdeos properties, north of Balangay I site, found over a hundred intact clay crucibles, grey earthenware discs used for melting gold, wooden tools in the shape of tweezer and pick, and fragments of worked and unworked gold, glass beads, iron slags, and bronze bells. In the Ambangan site, close to where the balangay boats were discovered,

the National Museum staff uncovered an area where gold smelting was done; crucibles used in smelting as well as remnants of ores were found.

The archeological materials indicate craft specialization among the inhabitants of the area from the 10th to the 12th centuries AD. Woodworking is indicated by the iron tools and the recovery of a variety of wooden tools as well as the balangay boats themselves. The technology for metal working was definitely known to the group as shown by iron slags, bronze artifacts, lead wasters and worked and unworked gold recovered from the area. The museum was able to recover a buckle, an ear ornament and a ring as samples from the area.

Three types of wooden tools which may be correlated to goldsmithing activity were found in the Torralba and Plaza properties, near where crucibles type II were found. The first one is a kind of stick, length 14.5 cms, tabular, and tapers from one end to the other. The function of the stick might be for separating molten gold from impurities. The second type is a knife-like wooden tool. The function of this tool cannot yet be ascertained. The third type is a wooden pincer, its functional purpose is probably for taking out gold products while still hot from the crucibles.

The numerous material associated with gold making, and the large number and variety of glass beads recovered are suggestive of gold working and glass beads reworking.

Butuan, then, was an industrial center. Bronson notes that "the great majority of recorded preindustrial metal makers did not work alone with no one but their families to help. They preferred instead to cluster in communities where there were a number of furnaces and a variable but significant level of cooperation in such activities as mining, fuel production, building and maintaining equipment, and marketing."

Most of the precious metal must have been for local consumption. Gold ingots or grains were traded with other Filipinos who worked the metal into jewelry or other ornaments. Also, some miners may have been goldsmiths themselves. Peralta (1984) suggests that the pre-Hispanic gold ornaments recovered in the Philippines are a combination of trade gold and locally manufactured pieces, and show the fusion of local and imported techniques in metallurgy and craftsmanship.

BUTUAN AND URBANISM

Butuan (pronounced **but-wan**) is now a city in Agusan del Norte province, northeastern Mindanao. It is named after a species of banana with a many-seeded fruit (**Musa errans**). Pigafetta already mentions "Butuan and Caraga" as a political unit: that is, northeastern Mindanao and the Pacific coast of that island, named after a town of that name. One of the seventeen administrative and electoral units of the nation is called the Caraga Region, comprised of the provinces in roughly the same geographical area. .

Butuan City today is the capital of Agusan del Norte province in northeastern Mindanao. The city lies in a vast flood plain formed millions of years ago by the complex Agusan River system. As great volumes of water from the south drains northward into Butuan Bay, alluvial soil is deposited by the river, which culminates in a very wide delta. Deltaic islands were formed as channels criss-crossed the flood plain. The Butuan delta region is a composite of estuaries where the sea water meets the river current during high tide. Behind it lies a well-watered valley, abundant wild game and forest products, and rich deposits of gold. In prehispanic times, settlements multiplied along the river tributaries since the region was rich in both marine and wildlife.

In prehistoric times, as in the rest of Southeast Asia, the inhabitants of Philippine coastal and lowland areas developed differently from those of interior and upland regions, as they exploited the particular resources of their localities (Villegas 1983: 47-8). At the same time there were shifts in population due to cyclical, atomistic dispersal (Taylor 1976; Whitmore 1977: 133-54). There was also constant interisland exchange (Bronson 1977: 39-52; Hutterer 1988: 177-96). The seas that surround these islands did not isolate them; seamanship was a central feature of Philippine prehistory (Scott 1982: 60ff; Scott 1989; Manguin 1986: 187ff).

In general, long distance international trade in Southeast Asia began to develop around the beginning of the Christian era. One of the major commodities was gold, owing to the insatiable demand for the precious metal in India. The development of the Philippine gold industry was spurred by external demand. While the Butuanons may have worked raw gold into finished artifacts for their own and their neighbours' use, as Pigafetta reports at Spanish contact, the metal must have been primarily marketed in ingot form.

With the metal as its significant commodity, Butuan became a major entrepot: The diversity of commodity goods recovered at the Butuan sites—ceramics, glass beads, metals including iron, bronze and gold—all attest to the active participation of Butuan in particular, and the various population centers of the Philippine archipelago in general, in thriving maritime trading activities in southeast Asia during the pre- and protohistoric periods. They are evidence of the complexity of Butuan's trade and commerce with China, Vietnam and other Asian countries from the Song dynasty (960-1279) to the Ming period (1368-1644).

Butuan emerged as an urbanized port center sometime in the first millennium. The apparent dearth of "true" urban centers in first and early second millennium states, and the rather amorphous collection of settlements of no clear rank-size distribution seem to agree with none of the accepted models for economically developed states. If we define true cities as centers which perform a combination of economic, administrative and religious roles, then we can say with confidence that Butuan was a city.

Historians discussing classic cities in Southeast Asia look for evidence for population increases and the development of site hierarchies, based on 'central places' receiving tribute from surrounding villages. The standard models assume a hierarchy of urban and rural centres and a system of regularized redistribution of regional resources. The classic central place theory assumes a more or less direct correlation between complexity of economic system and degree of urbanization.

Philippine urbanism however, was not unlike the Javanese system, which distributed goods and concentrated wealth in regions which were heavily populated but without cities. Java in Majapahit times was not even quasi-urban. Old Javanese terminology fails to differentiate between settlements of larger or smaller size. No word for city or even town appears in old inscriptions. In the Philippines, **balayan/bayan** simply referred to a concentration of houses. **Lungsod** as city is basically a 20th century derivation from the archaic **longsor**, to slide down, related to the Tagalog **luwas**, to move down, or to move out, thus referring in general to coastal settlements.

Philippine civilization can be better understood in the light of economic history and the dendritic model, which posits that exchange systems were based on dendroform river systems. Butuan for example, at the opening of the Agusan river, lies at its "trunk," and economic and political power of each community down the line is reduced as one goes up the "tree." Ancient sites along the Agusan River and around the Agusan Marsh have also been uncovered by clandestine diggers in the interior of Agusan del Sur. The sites have yielded porcelain wares from the Song and Ming periods, and gold ornaments, sometimes contained in wooden coffins. It can be inferred from these materials that inland trade was going on between the interior settlements with their forest products such as gold, beeswax and tree resin, and the coastal region, with imported porcelain wares and other items.

It may be pointed out that ceramic import concentrations occurred at port sites, and at nodal points along large waterways. "If such heavy, fragile and relatively low value items as earthenware pots were traded over wide areas by the eighth century, it seems more likely that more valuable and portable items—metals, cloth, dye-stuffs, tools and ornaments—reached an even wider market, and had for a longer period of time… The distribution appears to result from a rather diffuse, multi-centered, but relatively well-integrated pattern of local and regional trade which may have been more intense and concentrated in regions nearer to the coasts after the beginning of the tenth century " (Bronson 188, 191-192.).

It may be argued that the pattern of rank and size distribution of centers is an artifact of colonial administrative policy. With the possible exception of some of the ports and their catchment areas, they may bear little or no resemblance to the pattern of precolonial demographic distribution.

In any case in 1650, the total population in the Butuan area, i.e., around the bay and in upper Agusan, was only around 2,000. We can project a figure of not more than 30,000 for the whole of northeastern Mindanao. This is validated by the figure of 41,320 arrived at in 1738, when the head-count was more systematically done (Schreurs 1989: 180-81; 246). Together with eastern coast of Mindanao, now the Surigao provinces, the Agusan provinces constituted a linguistic (McFarland (nd): 90-91; Elkins 1977: 523-27) cultural, and political unit that the Spaniards continued to refer to as 'Caraga' (Schreurs 1989: 349).

INDIANIZATION

The distinctive function of the Butuan polity was to organize the procurement of gold and the manufacture of finished goods of that metal for local exchange and international trade (Ronquillo 1987: 78). Gold was considered to have amuletic and medicinal properties, and it was an important property of rituals. The precious metal, in the hands of artisans, was a medium for symbolist expression. There was strong and consistent demand for the precious metal. Butuan could have become a successful economic entity mainly on the strength of its trade in gold.

As Bronson observes, smelting centers which processed ore deposits which are large, exceptionally high in grade, and easily mined and smelted of course had substantial cost advantages. "If a centre possessed such a deposit and if it also had ready access to water transportation, it should have been able to sell its product at competitive prices even in quite distant markets. Depending on its margin of superiority, the marketing radius of such a centre could grow to a substantial size, and so could production and

the centre itself. There is no obvious reason why it could not be as large as most metal-producing centres of later and more developed areas " (Bronson 1992: 105).

As a result of the trade in gold and other products, the Philippines became cosmopolitanized. It was conversant and literate in the lingua franca of Indianized Southeast Asia; it adapted features of prevalent political ideology and social customs; it adopted standard weights and measures, and calendar reckoning; it was part of the region in its fictive traditions and its applied arts and sciences (Francisco 1971, Rausa-Gomez 1967).

A silver and a gold strip with inscriptions were recovered in Butuan in the 1970s. In late 1988, a copperplate inscription of a Sanskritized Old Malay/Old Tagalog text, dated AD 900, was found in Laguna, near Manila, and later translated by Antoon Postma. The Dutch scholar de Casparis has declared that the inscription "at last includes the Philippines in the 9th century Southeast Asian map." Their findings indicate that the Philippines had more in common with other classic Southeast Asian societies than was previously thought. The thought of Indianization is tantalizing: the Javanese began to use Indian script in the seventh century AD, and to make temples of stone and brick in the eighth century. Shortly after they began to use Indian symbols, the Javanese applied them to the creation of enormous works of art in stone such as the famous temples of Borobudur and Prambanan. (Miksic 1990: 21).

EDGE OF EMPIRE

One of the Philippines' most famous archeological artifacts is the so-called 'Gold Image of Agusan,' now displayed at the Field Museum of Natural History in Chicago. Over 20 centimeters in height, the 21 karat gold image weighs 1,790 grams. The image resembles a Hindu goddess with an exquisitely carved headress. It was excavated in 1917 near Esperanza, Agusan del Sur (up the Agusan River, and16 kilometers from Butuan City).

Beyer immediately related the image to the Ngandjuk period of Javanese art. The Dutch scholar Dr. F. D. K. Bosch in 1920 postulated that the image was made by local workmen in Mindanao. He suggested that some of them were Javanese, engaged in mining gold in the Agusan-Surigao area in the middle or late 14th century. Bosch identified the image as that of a Sivaite goddess.

Beyer and his generation believed that the Agusan gold image, as well as other gold finds in the Agusan-Surigao area, supports the view that the metal tradition in the Philippines is of Indian or Javanese origin. They linked the Philippines with the old empires of Srivijaya and Madjapahit, from as early as the seventh to the 10th century AD. Srivijayan influence in the Philippines, it was thought, was most discernible in Sulu, which was colonized from Bandjarmasin, and in west central Philippines.

Madjapahit power, according to the diffusionists, extended to the following tributary states, as listed in a 1365 manuscript: 18 in Borneo, 6 each in Celebes and Moluccas, one in the Talaret islands south of Mindanao, and three areas in the Philippines, namely, Sulu, the region of Lake Lanao in Mindanao, and the vicinity of Manila Bay in Luzon. Beyer theorized that there were also Javanese colonies in the Pulangi and Agusan river valleys in Mindanao, Palawan, Mindoro, and probably some of the Visayan islands.

In an archeological site in the province of Cebu, another small bronze image of the Hindu god Siva was discovered. This image was accompanied by a crude imitation of the Hindu god Ganesha, done in copper. Coins, pottery and images were considered as important relics of the Madjapahit days.

But the diffusionists' grand scenarios have not stood the test of time. Of Southeast Asian cultures, Indianization in the Philippines is least (Rausa-Gomez 1967). Juan R. Francisco in his 'Notes on the Indo-Philippine Images' refutes the theory that the Agusan image is Sivaite, because Sivaite bronze or gold images are usually in a standing, not a sitting position. Francisco believes that the Agusan find is Buddhist in orientation, but does not tell us why we do not find other evidences of conversion so intense that such an extremely valuable image would have been wrought.

Scholars have pointed out that the Philippines has no Hindu-Buddhistic temples or other monumental stone architecture, and was not clearly mentioned in classical epigraphy and historical accounts. "In the Philippines, there are some who expect to find, in a dense, dank Philippine jungle, a Hindu temple or a Buddhist stupa. To them sound history speaks sobering words about six centuries spent on the outer rims of two mighty and successive Indonesian empires" (Rausa-Gomez 1967: 63)

This researcher should have taken heed of the admonishment. In my first extended study (1983) I suggested that the toponym Gandara, a major site of gold artifacts in the Samar interior in the early 1980s, could be evidence of Indian settlement. Gandhara, in northern India, was the easter-most frontier of Greek civilization, from where Hellenistic culture radiated through Gujarat to the port of Cambay and from there to Southeast Asia. Camby was a major source of many of the stone and glass beads found in the Philippines. Subsequent archival reseach revealed instead that the bucolic town was named after a 19th century Spanish Governor-general, whose sickly wife stayed there and had taken a liking to the place far from the walls of Intramuros.

Yet, the Laguna Copperplate Inscription—dated 900 AD more securely connects us to Indianized Southeast Asia than ever before. Moreover, in the past three decades just as much Indianized gold ornaments have turned up in Filipino earth—between Sarawak and Manila, Palawan and Samar—than have been found in the other classic states of Southeast Asia. They indicate a uniquely intimate process of Indianization.

STATE AND LEADERSHIP

On the rim of Asia these islands may have been, but the quest for gold pulled the archipelago closer into the center of regional developments.

Gold had a preeminent presence in the Indian psyche. In Hindu mythology, the universe was born from a golden embryo. According to the **Rig Veda**, "The Golden Germ arose in the beginning; born, He was the One lord of (every creature);" the creation god Brahma was said to have been born from a golden egg. In Indianized cultures, gold thus symbolized creation (Miksic 1990: 19).

The search for the precious metal stimulated Indian-Southeast Asian trade in the last centuries BC, following the cut-off of India from her traditional source, Siberia, as a result of political developments in Central Asia. The shortage of the metal in the subcontinent was further exacerbated with the prohibition of its export to India from Roman territory by Emperor Vespasian in 69-70 AD (Lyons 1979: 345; Patanñe 1977: 361).

The earliest references to Southeast Asia as a gold source appear in the **Ramayana** (6th century BC Indian literature) which mentions Suvarna-dvipa (Sanskrit: **suvarna**, gold; **dvipa**, peninsula or island). In the light of archeological evidence, the Indianization of Southeast Asia and the development of metal industries intensified simultaneously.

It has become clearer that for the Philippines, inward culture transfer was through economic exchange, occassional migration, and perhaps evangelization, rather than actual occupation or political imposition.

Banyaga, the Filipino word for 'foreigner,' is derived from the Sanskrit/Malay **vaniyaga**, or trader (Jacques 1986: 327-33; Casparis 1986: 48-61; Francisco 1971: 17-37). This suggests that during the Hindu-Buddhistic phase, as in the case of Islamization later, trader-migrant-proselytizers were the main agents of culture transfer.

To have been able to supply the demand for gold, social and political organization on a higher plane became necessary in the Philippines.

The archetypal Southeast Asian political entity started out as the personal and somewhat fragile achievement of "big men" (**malalaking tao**) and "men of prowess" **(magigilas).** Authority was later consolidated through intermarriage among elite clans, leading to the concentration of power in particular lineages. This led to the formation of the "complex chiefdom." Wolters prefers the term **mandala**, in practise "a particular and often unstable political situation in a vaguely definable geographical area without fixed boundaries and where smaller centres tended to look in all directions for security. Mandalas would expand and contract in concertina-like fashion."

While new religious ideas brought ancient and persisting indigenous beliefs into sharper focus, it did not supersede them. In one article Wheatley (1975) argued for a transition from 'shaman to Brahman'. In his 1983 investigation into urban genesis in Southeast Asia, he argues for a

concentration of spiritual power in local chieftains until a state of theocratic kingship is attained. An earlier ancestral or territorial spirit cult is replaced with Saivite devotion. Therefore, he posits, "the guiding political and moral sanctions for the early historic polities was religious."

In this way, "Indianization" in the Philippines meant not so much the transference of "Hindu" religious concepts, but the adoption of political precepts. Indian-influenced statecraft—as well as economic expertise—brought about institutional innovation and more centralized government.

The rapid rise of Butuan appears to have occurred towards the end of the first millennium AD. There may not have been a sharp break or discontinuity between the prehistoric and the historic societies of Butuan. Village autonomy may have been superceded and self-sufficiency may have been attained over a period of hundreds of years. But nevertheless, there seems to have been a relatively quick rise to the complex Indianized state of historical Butuan.

The evidence suggests that the Butuan state had two major reasons for existence: first, it organized the procurement, processing, manufacturing and marketing of gold and other native products; and second, it organized the local distribution of foreign goods it acquired in exchange.

Butuan became a powerful kingdom with a large and bustling trading community, and its wealth must have lured other migrants from other islands to settle. It would have had direct contact with Champa in the tenth century, as suggested by Beyer and others. From the Song dynasty, the China-bound seaborne trade intensified (Coedes 1968: 130ff) and the Chinese market was opened to insular products (Hutterer 1977). Butuan's development intensified (Ronquillo 1987).

It was the first Philippine state to establish diplomatic relations with China. On 3 October 1003, its envoys Liyihan and Jiaminan petitioned the Chinese emperor in Beijing for tribute status—which simply meant ceremonial recognition of the emperor as supreme Ruler of the Universe, a requirement for legal trade. At the turn of the eleventh century, its ruler, Kiling, journeyed to the Chinese imperial court and instituted direct trading ties. Other missions followed, including one led by a Butuan ruler with an Indianized name, Sri Bata Shaji, in 1011. Scott lists the names of other Butuan kings found in the Chinese records.

These maharajas and members of their court were the only ones—in view of the archeological and historical datas—who could have commissioned the regalia that forms the Surigao Treasure, and the ornaments found in Butuan.

At this point the Butuan polity was at the apex of its influence. The Philippine islands were part of a trading system that included parts of Borneo and Sulawesi, where ethnolinguistic groups still identify themselves as **visayas** or dependencies (Schreurs 1989: 57; 113; 215; 349). It was serviced from the south by a far-ranging boat people known as Sama or Samal, who were centered on Basilan Strait but had outposts as far north as Capul Island off Samar, where traces of their language survive to this day (Scott 1992: 164).

Butuan even had pretensions to regional supremacy, although its attempt to be recognized on the same level as Champa fell short (Scott 1989: 3-4).

From around 1300, Islamized polities in Brunei, Sulu, western Mindanao and southern Luzon challenged Indianized Butuan (Majul 1973 and 1974). By the turn of the fourteenth century, Brunei claimed Butuan as a dependency (Scott 1989: 6, 21) as Muslim influence was consolidated in this part of the world (Saranggani 1974).

Butuanon themselves migrated south to settle in Sulu, where their progeny came to be known as "people of the current"—the Tausug. Linguistic studies on the relationship between the Tausog and Butuanon languages support Butuan oral history, which recounts their ancestors' migration to Jolo, Sulu and intermarriage with the Samals. Linguists Healy and Thomas estimate that the Tausogs separated from the Butuanon about 1200 AD. They established Jolo as a major exchange port on the Moluccan spice route, and the Taosug state was recognized by China in 1417. As late as 1600, the sultan of Sulu, Batara Shah Tengah, appears to have been an actual native of Butuan.

Butuan was overshadowed by Brunei's commercial expansion into Mindoro and Luzon, and eventually became a Bornean dependency itself. It was still important enough to attract the Spaniards on their arrival in 1565. Villalobos was told that Chinese junks called at its port. But its former glory was too long gone for the Spaniards to learn about it.

Despite Indianized influence, Philippine cultural development remained largely ectogenous, or self-generating. It was a unique synthesis, on the one hand of a curious and open culture of seafaring islanders, but on the other, an aloof and reclusive culture of autochtonous islanders. The Philippines' rich natural resources and the capability of its people to exploit them gave the islands a role to play in Southeast Asia, but their peripheral location made it a last priority in hegemonistic strategy.

There is no firm epigraphic evidence proving Srivijayan and Majapahit, and certainly not Indian, "rule" over the Philippines (Rausa-Gomez 1967). Chinese "rule" did not consist of actual occupation (Scott 1989: 21-22). Thus the people could freely choose what kind, and how much foreign culture their own culture could absorb. The resulting cultural material is an eccentric assemblage that disorients most scholars of Southeast Asian culture and art.

ROLE OF GOLD

If the above history of precolonial Philippines sounds unfamiliar, it is because much of it was reconstructed based on historical data and theories uncovered and developed only in the last three decades. In many parts, its lineaments have been deduced from the evidence wrought in gold.

Gold was an important—indeed an indispensable—property of Classic Philippine rituals and life.

The precious metal was used as part of the dowry. Sometimes marriage arrangements were made when the betrothed were babies. When the time for marriage came, a dowry would be given by the man to the woman. A present of gold called **panhimuyat** was given to the bride's mother in return for the watchful nights she spent in the rearing of her daughter. A **pasonor**, a gold chain, was given as a wedding gift by a chief to his betrothed daughter.

Gold ornaments were a part of the marriage ritual. The metal figured even when engagements were broken: one report mentions a penalty of 10 gold **taels** was paid. Women's jewellery of poignantly small sizes suggest matrimony at a young age. "I do remember that once when I was solemnizing a marriage of a Bisayan **principala** (member of the upper class)…she was so weighed down with jewellery that it caused her to stoop—to me, it seemed it was close to an arroba or so (11.2 kilograms), which is a lot of weight for a girl of twelve…" (Alcina 1668, quoted in Fernandez and Koback 1984: 285, 308). A set of twelve dowry bracelets in the Virata collection have extensions, indicating that the owner was so sentimental she did not want them melted and reworked; new sections were simply added to make them fit her adult wrists.

In Zambales, blood money was normally paid in gold, the amount ranging from a minimum of 5 taels up, depending on the deceased's status. If the murderer had no gold, silver at the rate of 8 pesos per tael of gold could be paid. If the murderer still had none of these, he had to capture a Negrito, who was given as a slave to the deceased's relatives. Sometimes, the deceased's relatives chose to kill the slave. If no Negrito was found, they they gave their son for ransom, and he was to be dispensed with in the same way as a Negrito would have been. If a daughter was given for ransom, she went into service, and when she married, she went back to her father's house. If none of these were available, the kin of the murderer helped the person get ransom, because they feared that unless the ransom was paid the deceased's relative would kill him or his relatives (Perez 1680). In other areas, 70-80 tael of gold was paid and if the murdered man was a prominent chief, 100 or more taels might be paid.

According to Morga (1609), slaves were bought with gold and lived in their master's house. Slaves were worth 10 taels of gold or 80 pesos. Slaves who had their own homes outside of their master's, but were bound to their master's summons, were worth 5 gold taels. Other types were priced proportionately according to the person's age. Colin (1663) stated that next to gold, slaves were the property held next in esteem. "Gold" was also used as a personal name. For example, Vray, which means fine gold, was given to a woman because of the nobility of her lineage (Bodabilla 1640). It was also a primary measure of wealth, the person having the most gold and the most wives being considered the wealthiest.

The metal was commonly placed in the mouth of a corpse. A number of other gold items owned by the deceased were also buried with the

deceased, along with some cloth and other valuable objects. It was believed that if they brought riches to the other world, they would be received well, but coldly, if they were poor. (Loarca 1582). Among the people of Zambales gold was paid to a priest called a **buyoc** when the latter performed a death ritual. (Perez 1680).

BEYOND DEATH

The most important rite of passage was death. Gold had a special role in the quest for eternity.

Chirino (1604) described mourning rites. The cadaver was washed and perfumed with the gum of **saleng (Styrax japonicum),** all body cavities having been filled with the sap of the **buyo** (piper betel). The living seriously took the task of provisioning the dead with weapons, gongs, even slaves—porcelain plates and saucers were placed under the head like a pillow, or over the face and breasts (Scott 1994: 89).

Francisco Colin, in his Labor Evangelica of 1663, says that "the rich and powerful were bewailed for three days." The deceased was adorned with jewels and attired in costly cloth sewn with minute beads of glass and appliques of gold. The face was fitted, in some cases with a full mask, but more often "adorned"—according to Colin—with cut-out covers of gold sheet on the eyes, mouth and sometimes the nose as the Spanish conquistador Loarca (1582) already reported. A diadem was tied over the brow. The body was then placed in airtight caskets carved out of "incorruptible" hardwood, called a **longon**, which was placed under the house.

Among the Visayans of Central Philippines, it was believed that the dead lived out their afterlife as deified ancestor spirits **(humalagar)** in idealized places—Mount Madya-as for the Kiniray-a of Iloilo, or Borneo for the Cebuanos and Boholanos. But first, the departing Visayan soul was delivered, by boat, to the land of the dead, called Sulad. On the other shore, the **kalag** (soul) would be met by relatives who had predeceased him, but they received him well only if he was well ornamented with gold jewelry.

If rejected, he remained permanently in Sulad, unless reprieved by the God Pandaki in response to rich **paganito** rituals offered by his survivors. Sulad was not a hell where evildoers were punished. Those who dwell in Sulad—the Sulanun—were simply those who went to the grave without sufficient gold and whose relatives could not afford the **paganito** ritual to rescue them (Scott 1994: 92, 162).

One Spanish chronicler was told that "In former times, they would not let them depart to the other world alone, but gave male and female slaves to accompany the dead. These slaves, having first eaten a hearty meal, were then immediately killed, that they might go with the dead man. It once happened that they buried with a chief a vessel manned by many rowers, who were to serve him in his voyages in the other world." Colin (1663) was more detailed (and ascerbic) in his account of the event: he identifies the chief as a king of Bohol, who was buried in a **balangay** boat "surrounded by seventy slaves with arms, ammunition, and food—just as he was wont to go out upon his raids and robberies in life; and as if he were to be as great a pirate in the other life as in this" (BR 12: 293-96).

It was believed that such elaborate arrangements ensured the soul's recognition as having been an important personage in life, and the continuance in the style which the deceased had lived. But more important, these riches exalted the individual who, in death, joined the ancestral pantheon and thus gained the power to intercede supernaturally in the affairs of the living.

Colin wryly noted: "Generally, whoever could succeed in it attributed divinity to his aged father at his death. The aged themsleves died in that presumptuous delusion…" One patriarch of Leyte ordered his burial in a structure all by itself on the seashore, "in order that he might be recognized as a god of navigators who were to commend themselves to him." Another had himself buried in certain lands in the mountains of Antipolo [near Manila] and through reverence to him no one dared to cultivate those lands…" (BR 15: 37-48).

Those temporal riches—even their bones—have been consumed by time, but their treasures in the eternal metal endure.

11

Artisans and Design Precepts

ANCIENT ARTISANS

Mining requires expertise and brute force. Greater are the skills needed to fashion raw metal into wrought gold.

In traditional Philippine society, the importance of specialists with particular skills was emphasized by the bestowal of the title '**panday**,' in recognition of mastery of an art, an applied science. They performed unique roles in their communities' struggle with nature; they attended to the birth of valued functional and ritual objects. In western Mindanao languages, midwives are called **panday**. Skills in various materials were specified: there was the **panday-anluwagi** (builder-carpenter), **panday-bakal** (blacksmith), or **panday-ginto** (goldsmith).

Natives of gold mining areas would have had several options, as shown by the career of contemporary artisan and National Craftsman Arcilla of the town of Paracale, in the province of Camarines Norte. The name of the southern Luzon town is derived from **kali,** or gold pit-mining. From a landowner he acquired mining rights, for a fixed monthly rental plus 10 per cent of the metal yield. He opened the land to diggers on condition that he would have first option to buy the gold. At the same time, he trained and organized goldsmiths and paid a fixed rate for their labor, based on the weight of the finished pieces. He sold raw material for a marginal gain, and finished pieces in Manila for a larger profit. Even the landowner's share is worked by him. He has bought his own parcels of gold-bearing land, to be worked on later. Similar arrangements may have been entered into in prehispanic times.

Given the availability of gold in most parts of the archipelago it is probable that even in the first millennium of the Christian era, itinerant **panday** moved continuously, effecting technology transfer and the diffusion

of design concepts. A report from 1586 states that in Camarines "there are many excellent goldsmiths after their fashion. Those men roam the island in order to gain their living" (BR 34: 386). Lesser artisans moved from town to town, and would have been fed and housed while work was in progress. If goldsmiths were not slaves or in servitude for debt, they had relative freedom of action.

But highly skilled panday-ginto would have settled in major population centers, where there were wealthy patrons and more importantly, the challenge of cosmopolitan influences. The gold trade must have brought foreign traders and techniques with jewellery to sell and designs and techniques to impart.

THE INDONESIA QUESTION

What was the extent of that influence? In the late 1960s, following the prevailing ideas about diffusionism, the archeologist Tom Harrisson explored the evidence on Hindu-Buddhist and Indonesian influence on the Philippines, through Borneo and Sulawesi, which are immediately to the south of Mindanao.

Harrisson concluded then that "On the present evidence…the art of 'Hindu-Buddhist' motivated goldsmiths had significant visible impact up the Borneo coast as far north and east as Brunei Bay, dwindling all the way and only crawling northward…Sarawak and Manila (are approximately) 700 sea miles apart, a long haul before the advent of steam, and with many and varied other islands and peoples in between… This, in turn, liberated the more northerly peoples from conventions in gold-craft not ideally suited to local materials and outlook, thus producing the much livelier (forms) seen in Manila" (Harrisson 1968: 80).

Because the pieces Harrisson saw in the Locsin and de Santos collections were found mostly in southern Luzon and Mindoro, he came to the conclusion that "There is a notable Philippine scarcity of well-known Indo-Indonesia forms which predominate…in West Borneo." His comparison of "about 300 gold pieces from West Borneo with about 800 from the Philippines (mainly Luzon to Mindanao) gives some 4 % of the former with any discernible affinity to the latter, although this is necessarily at this stage based on partly subjective criteria. Less than 4% could reasonably be called closely similar or 'the same'.

Harrisson himself is bothered: "This is somewhat surprising and probably significant in view of the elaborate traffic of goods, especially precious goods (e.g. ceramics), which developed through both areas after 1000 AD." He concluded that "Indeed, most of the material found in Borneo south of Brunei is evidently either much influenced by or directly imported from islands further to the west; but not, on present knowledge (still very inadequate) by or from the Philippines to the north" (Harrisson 1968: 77-79).

There are those who suggest attributing the gold artifacts found in the Philippines to the "more advanced" civilizations, particularly the Javanese. It seems only reasonable to ascribe craftsmanship of Indianized gold ornaments to the society that produced Borobudur. Several reasons however, must dissuade us from this attribution.

First, the comparative scarcity of the metal. Harrisson points out that "Although Sumatra has been much mentioned in scholarly literature as a center of gold trade and craft, in reality it is not rich in gold, and in recent times even 'unrewarding'…Java has never been a significant source of mined or washed gold, but has a high reputation for the art of its goldsmiths, especially those…centered in middle Java" (Harrisson :45). Closer to the Philippines, "It is only possible to prove actual production of gold in western Borneo back to (the year) 1760…" (Harrisson 1968: 9)

Miksic concurs: "The Javanese did not choose gold to make symbolic objects because it was easy to get…the rocks of Java contain very little metal. The Javanese have had to import most of the material for their tools, weapons and ornaments. Java has few deposits of gold, and there is no evidence that they were worked in ancient times. Most if not all the gold they used was probably imported" (Miksic 1990: 19).

"In 1656," he adds, "a Dutch envoy to the central Javanese kingdom of Mataram marveled at the low price of gold: 'He could only explain it by the constant plundering of pre-Islamic graves in which so much gold had been buried'…"(Miksic 1990: 15) This was in contrast to the consistent reports of gold mining activities in the Philippines at that time.

Second, the higher quality of early gold artifacts. "The strong impression one gets from looking at the treasure cabinets of Philippine friends is that there was a very different, more florid, vigorous local goldsmithing tradition in the pre-Hispanic Philippines, when compared with West Borneo, where few gold artifacts at present known show any particular local dynamic." Philippine gold work, he continues, "is often beautiful and sometimes elaborate; seldom resembles that from adjacent Borneo; and tends to differ from that of island Southeast Asia generally" (Harrisson 1968: 77-79).

Harrisson compared Borneo finds with gold artifacts in important Manila collections, particularly of Leandro and Cecilia Locsin's (Harrisson 1968: 43). He concluded that the Limbang hoard shows close Philippine affinities, though the group is strongly "Javanese" as well. Second, small but significant "Hindu-Buddhist" influences are suggested, or more vaguely as Indonesian ("Indian") influence rather than anything "Chinese."

Also, "as in West Borneo, few gold pieces can be dated very early and the major goldsmithing appears to have occured after 1000 AD—and perhaps especially between 1200 and 1400 AD. …as in Borneo so in Philippine pre-history, remarkably few fine things of gold seem to have been made later than about 1400 AD—perhaps because of a change in trade patterns and export requirements to the mainland after the start of the Ming dysnasty (or the equivalent), and/or the new attitudes evoked by Islam after 1400" (Harrisson 1968: 77)

Finally, he reiterated that Philippine gold artifacts in general tend to be more elaborate and better crafted than most from West Borneo.

Harrisson looked at the Dr. Arturo de Santos collection (part of which was acquired by the Bangko Sentral ng Pilipinas) as well, and observed that "…the range of Philippine gold jewelry…includes many pieces of a complexity and finesse that is beyond anything attempted in Borneo" in so far as what had been found at that time (Harrisson 1968: 56).

Throughout Indonesia there was a relationship between gold artifacts and the ruling aristocracy, in the class-power centers which developed on the coastal plains around the middle of the 1st millenium AD (Harrisson 1968: 44). Precious metals were worked 'exclusively in those areas where the influence of Hinduism was strongest': he includes Java, Bali, southern Celebes and the coastal districts of Borneo. These areas developed as centers with established hierarchies, which necessitated the conspicuous display of wealth (Harrisson 1968: 47).

Indianization in Philippine gold ornaments, therefore, was a matter of selective adaptation, rather than wholesale adoption.

There was a demand for gold, which the Philippines could have supplied. It would be reasonable to suggest that one of the main sources of Javanese and Bornean gold was the Philippines. That trade would have been important enough to have been direct, by-passing minor pass-on players say, in Sarawak or Sulawesi. Moreover, the early interest in gold from the Philippines would have been in the raw material rather than wrought artifacts. In turn, local interest would have been on goods **not** made of gold, which they had plenty of.

To paraphrase Harrisson, "This, in turn, liberated the (Filipinos) from conventions in gold-craft not ideally suited to local materials and outlook, thus producing the much livelier (forms) seen in Manila" (Harrisson 1968: 80). Indianization in Philippine gold ornaments, therefore, was a matter of selective adaptation, rather than wholesale adoption.

INDO-FILIPINO GOLD

An ear ornament form also found with enhanced variations in Butuan and Samar-Leyte is also found in India. In a temple fragment from Khajuraho, central India, a woman wears an unmistakeable **"uod"** (caterpillar), a fistulous, U-shaped ornament composed of welded half-domed rings slit along the length of one side which appears to be 'wrapped' around the extended ear lobe.

There are uniquely Philippine, massive chip-carved conical ornaments fashioned in the spirit of Pallava and Chola architecture of the tenth and eleventh centuries (Swarup 1968: xxiv). Other examples found in Samar and in Butuan have marvelous **burit** or granulated siding. I have suggested that "perhaps they were finials for waist cords, meant to hang down the thighs" (Villegas 1983: 62), This was based on the Tagalog plate in the Boxer Codex, an illuminated manuscript of ca. AD 1600. Stutterheim suggests that similar ones found in Indonesia were ear ornaments (Miksic 1990: 48-49). The late Dr. Arturo de Santos had always maintained the same view. It is possible that smaller, lighter ones may have been used in ear ornaments to gather a cluster of pendent bead tassels, like those worn by figures in Indian sculpture (Craven 1976: fig. 52; Swarup 1968: vii).

Undocumented but known to be in the Locsin collection in Manila are a massive **vaishaya** caste cord and oil lamps in the form of **apsaras**.

The three-layered collar of granulated pendant beads is Indian in concept, but Filipino in sensibility. The gilt one in Stronge 1988: 80, is an example of this type. Certain sashes with square clasps appear to be similar in form to collars worn by **yaksha**, or guardians of the mountains (Swarup 1968:11; Craven 1976: 45-46; 108). Weren't the Butuanon rulers, in effect, 'guardians of the mountains,' the source of gold?

In the Philippines, gold ornaments are found similar to those found both in Central Philippines and Java, such as rings with **Sri** inscriptions. The Sri motif was based on three characters in old Javanese script spelling her name. Flourishes were added to the characters, which were eventually developed into pictorial representations or abstract designs of fish, waterpots and lotuses, and conches. "In later Hindu mythology Sri was considered the consort of Vishnu. The conch and fish are Vishnu symbols; in one legend Vishnu is said to have been a fish, Matsya, who saved Manu, the ancestor of the human race, from a great flood in which all persihed. In India today some people wear rings decorated with fish motifs as a way of invoking Vishnu's protection" (Miksic 1988: 13-14).

Another motif associated with Vishnu are the **vajra**. Ear cuffs with the claw and ball motif were described in colonial Indonesian literature as "bird-rings" (Miksic 1988: 54-55. See Miksic 1990 for more examples). The examples in the BSP collection have pendient lotus buds.

Garuda ornaments have also been found in the Philippines. A **garuda** ornament obtained by Dr. Robert Fox in Brooke's Point, southern

Palawan, on exhibit in the National Museum in Manila, was stolen in the early 1980s and never recovered. Others were subsequently found in Agusan del Sur in 1989 and 1990. In Hindu mythology, the garuda is the mount of Vishnu; the garuda is also the sun bird or sun eagle, and as such is opposed to the snake which symbolizes water and the underworld. In Old Tagalog, the word for sun was **hari**, which also refers to 'ruler' or 'king'; the **garuda** was therefore a symbol of royalty.

Graeco-Roman/Indian are the elliptical rings for the finger with tubular shanks set with cabochon and intaglio stones being found in Southeast Asia. So are loop-in-loop chains, which are similar to those in the British Museum in London (BMP 1977: 112, 118, 125). One type is on the Tiruvelangadu bronze of Siva Nataraja, ca. AD 110 (Swarup 1968: xxii). The **Liang Shu**, a Chinese annal, records a mission from Langkasuka, on the east coast of the Malay Peninsula in AD 515. The document recounts that "the king and the high ministers wore a yunxia cloth to cover their shoulders, with necklaces of golden cord. They wear gold earrings. The women just wrap a cloth round them and surround the body with jewelled necklaces" (Miksic 1990: 34).

Also found in the Philippines are sheet facing for wooden ear spools. Another type are open ones with flared rims (Ellis 1981: 245; Sariadini 1985: 84, 245; Miksic 1990: 64). **Lingling-o** or C-shaped ornaments (Lewis and Lewis 1984: 34-35) are also part of other Southeast Asian gold traditions. There are conical gold ear ornaments similar to those still worn by the Karen people, but in ivory (Lewis and Lewis 1984: 57). Delicate, grain-like beads are still made in silver by the hill tribes of Thailand (Mookerjee and Khanna 1977: 41ff.).

Though the grasp by Philipppine artisans of the aesthetic principles and sensibilities of the Indianized world appears to have been broad, we cannot assert ideological comprehension and religious belief. Some writers, for example, have interpreted the flower/sun motif in Philippine gold ornaments as Hinduistic **yantra** and **chakra**. The wheel with four, sometimes eight spokes was the **chakra** of Vishnu and was also the ancient symbol of the sun.

But solar and floral motifs were universal and may have been the result of independent conceptualization. For example, "The king of Boli, in east Java, was served by ladies who decorated themselves with golden flowers…In the 4th century the king of Linyi (Champa) wore a hat decorated with flowers" (Miksic 1990: 34). While it is conceivable that ancient Philippine artisans may have exchanged pleasantries with their Javanese and Cham counterparts, they did not need to do so, just to depict the sun and flowers.

Perhaps the most intriguing artefact with Hindu-Buddhistic significance is the Golden Image of Agusan. Francisco cites the anthropologist Garvan as saying it was thought to have come from a town swept away during a big flood in the late 19th century (Francisco 1971: 38-46). Oral history, according to Van Odijk (1973) and Schreurs, recounts that a town called

Linao, located between Talacogon and Bunawan, had been so devastated by flooding sometime in the past that its inhabitants moved to Bunawan. Linao may have been the town the informants of Garvan were referring to.

The Agusan Image may be related to the figure on the Mindoro cuff formerly in the Arturo de Santos collection and now in the Yap collection. According to the late collector, this cuff was alleged to have been excavated in Mindoro. The figure's pose is very similar to that of the figure on a coin of the Kalachuri king Gangayadeva (1015-40 AD) of Tripuri, northern India (Stronge 1988.: 25, pl. 33). The swirled flanges on the shoulders signify the aura of kingship and divinity. In the 18th- 19th century Indonesian rectangular pectoral (Rodgers 1985: 235), the aural device was transformed into wings.

Both depict figures seated in a "yogic" position. But most Filipinos—and Malays for that matter, Indianized or not—sat with their feet drawn in, just so. Pigafetta, Magellan's chronicler, described Filipinos seated "with feet folded like tailors".

Some of the non-Indian borrowed designs found only in their original sources and in the Philippine area suggest direct linkages with other cultural currents from the Indian Ocean. Among these are **kamagi** necklaces (Aldred 1978: 105) and penannular, barter rings which both show Egyptian influence (Aldred 1978: 20, 94). The earliest insular Southeast Asian products reached the Mediterranean through a port on the Arabian Gulf, which were transported overland to the headwaters of the Nile, then shipped down to Alexandria. Austronesian traders are also known to have reached Madagascar (Miller 1969; Taylor 1976), so the African connection is an established fact.

Hellenic-Asian or Parthian-type earrings have been found in Butuan (BMP 1976: 122). West Asian influence is also seen in the conical necklace finials with triangular massed granulation similar to those found in Afghanistan (Sariadini 1986: 113, 115, 117). West Asian-type bullae-like elliptical disc pendants have also been found in the southern Bicol peninsula and northern Samar (BMP 1976: 76, 84, 123, 131, 135).

Though China had a limited gold tradition, Chinese contact inspired the crafting of small gold ware such as bowls and stemcups, and vessel fittings found as part of the Surigao Treasure (To compare with Chinese artifacts, see Gyllensvard 1953). On the whole, however, as in Borneo, "…parallels…point primarily, though not exclusively, towards Java, and through Java to "Indian" influences thereon…there is no suggestion of Chinese influence. The whole atmosphere is Hindu-Buddhist, with a mild emphasis on the Tantric version of a sort of Animo-Buddhist outlier which seems to have prospered in West Borneo through the 13th and 14th centuries…" The ideological framework appears to have been "Tantric-Buddhist-Hindu-Animism," in the words of Harrisson (1967: 49).

The vocabulary of borrowed designs seen in the Surigao Treasure as an assemblage, and in prehispanic Philippine gold in general, argues that Indianization was part of a larger process of cosmopolitanization. It was a product of economic and political opportunity and cultural convention, rather

than of the abiding faith and philosophical grasp that, for example, brought Borobudur into being.

THE INDIGENOUS FORCE

Even as we discuss foreign influences, it is important to remember that artistic borrowing and technology transfer were not necessarily contingent on each other. The motives of expression and the requirements of form brought about indigenous, innovative technology.

Spontaneous and independent technical invention surely gave rise to a common range of aesthetic modes that logically ensued from the nature of the technique. For example, there has been some discussion on the influence of Tantric mandala-diagramming on classic Philippine design (Legeza 1988: 129-36). Any society with knowledge of weaving, however, will sooner or later evolve design concepts based on cardinal points; any society with knowledge of pottery cannot but arrive at the concept of the circle.

External conditions and centrifugal forces acted on Philippine gold forms and technology. It is important to remember, however, that indigenous cultural characteristics provided the fulcrum for its outward orientation, and ultimately, the centripetal force that sustained its integrity.

Animism remained a strong undercurrent in the Filipinos' belief system and in fact endured among groups in the interior. In many cases, it is difficult to distinguish between foreign influence and indigenous confluence.

Many forms have been derived from nature. Sea-life forms are understandably abundant in the art of peoples living in an archipelago. There are pendient elements in the form of abalone shell found in Samar and of course there are the **suso** beads, which are obviously derived from the shape of long spiral shells. But the conch-shell form in one ring cannot but also be symbolic: the form represents a cornucopia, or symbol of plenty or prosperity. It also represents Vishnu, the Preserver.

Another example is the bird motif, perhaps a royal symbol, which recurs in Surigao sword handles. The stylized bird has a long beak, at the tip of which is a disc. The bird is surrounded by flames, which represents magical power (van der Hoop 1949: 170). Is the bird a symbol of the Hindu fire god, Agni, who was associated with gold? (Miksic 1990: 19). Is the bird related to the Chinese phoenix, with a flaming pearl at its beak? Is the motif a local take-off from the garuda, the sun bird? Or does the bird represent the bird of premonition?

Other avian-form ear ornaments in private collections appear to have been whimsey on the part of individualistic artisans or patrons. Some cutwork diadems depicting the stylized bird and snake (Maranao: **sarimanok, naga**) allude to the Southeast Asian mythic principle of cosmic dichotomy—

male and female, sky and land, mountain and sea. Among the Dayak of Indonesia, there is a god of the upper world—symbolized by the hornbill; and a god of the underworld, symbolized by the watersnake (**naga**) (van der Hoop 1949: 274). It may have symbolized mastery over a realm that is both inland and littoral, and which the Maranao people, who retain the same stylized motifs in their tradition, once exercised (Orellana and Endriga 1982). The Butuanons too were masters of the seas, the great Agusan river and marshland; they also controlled the Diwata range, which formed the core of the Butuan and Caraga realm.

The serpentine naga was a powerful, pervasive image, and snake spine may have been the model for the ball-and-socket mechanics of the so-called "gear beads" which comprise the **kamagi** necklaces. Similar beads were also found in a Tantric shrine at Bongkisam, Sarawak. They found "Eight thin hollow circles of gold with a pebbled surface of textured design in small raised dots of gold. (Obj, No. C.7-14) These ring-like objects were probably personal adornments, either strung on a chain or sewn in clothing. The largest has a diameter of 9mm and the smallest 6mm" (Harrisson 1968: 22-23). They have found similar disc beads built of little pellets of gold, aside from a 'very beautiful woven chain' in Kuala Selinsing, Perak , Malaysia (Harrisson 1968: 48).

After analysing vocabularies, Scott (1992) concludes that the most spectacular item in the Visayan inventory was the **kamagi,** a heavy gold necklace of beads so tightly interlocked that it is as solid and sinuous as a golden serpent." The term also referred to multiple "loop-in-loop" chains. The individual loops were called **goar**. When woven in their simplest form, they were called **sinoyot;** but if square, **pinarogmok;** or if octagonal and with large round finials called **tontonan**, they were called **siniwalo.** A single large **kamagi** strand was called **saay**, but the long thin **barbar** could reach 4 meters and so swing grandly to the ground even when doubled or tripled. Such jewelry may have been exported. Scott points out that the royal regalia of the Makassar Gowa dynasty on display in Sungguminasa (Sulawesi) includes a gold chain necklace said to have come from Manila.

Snake heads are alluded to in the finials of the loop-in-loop chain in the Ayala Museum collection (Villegas 1983: 97) and in the smaller one in the Que collection.

The strong streak of Filipino individualism, ultimately traceable to the Philippines' atomistic society and archipelagic topography, found expression in their jewellery's multiplicity of parts. The overwhelming majority of Philippine gold ornaments are beads or necklace elements ranging from less than 0.1 cm to same 1.0 cm , though a rare few reach—and rarer still, some surpass—3.0 cm in length.

Perhaps every variation in form, texture and construction technique was mastered by Philippine bead artisans, whose works survive in the thousands. Scott found words referring to beads in the early lexicons compiled by Spanish chroniclers. These include the four sided **matambukaw**, long hollow **tinaklum**, and fancy **pinoro** finials with granules added to their surface like tiny gold islands (**poro/pulo**). Others were shaped like little fruits—**arlay** like Job's tears, **tinigbi** like tigbi fruit, or **bongan buyo** like betel nuts.

Assemblages as found suggest that within their owners' lifespan, varying artisans were commissioned to make the elements in batches, at various times. By their very nature as disparate elements, the arrangement of gold beads could be altered at will by the wearer; as such, they were individual histories, markers of personal circumstances and transitions.

A related Philippine aesthetic principle was articulation, or the movement of joined parts. A prime example is the penannular earring with multiple pendants of floral forms. Ear ornaments constructed on the same principle, made of glass beads and similar cut-out forms in shell and sheet metal, are still made and worn by isolated mountain groups in northern Luzon, and eastern and central Mindanao (Ellis 1981: 234, 244, 246, 248; Rodgers 1985: 306-68). Very similar barter ring and pendant types are also found in Egypt (Aldred 1978: 1Il. 94; Wilkinson 1971: ills. XLV and XLVI).

Surface decoration was another artistic trait. Most Philippine jewellery shapes remained elementary throughout, but particularly in pieces associated with ceramics from the late 10th to the early 14th. Texture was achieved through a whole gamut of techniques. Few areas were left unembellished, an aesthetic trait that one Filipino art writer dubbed as **horror vacui**, or the fear of emptiness. The tendency may be seen beginning from what appears to be earlier stylus work, as in the over-all meandering swirl pattern through burit-work, or granulation, wire and sheet appliques, to the later tradition of Malay vegetal repoussage. The Philippine variegation of Khajuraho-type ear ornaments is characteristic of the tendency to elaborate, which stopped just short of excess. In examples from the Surigao Treasure, part of the surface is granulated, while a Samar type does away with the ridging altogether, replacing it with applied rondelles and crimped sheet appliques, as in some examples. In the 'half-moon' variety, flanges were added.

Both men and women wore ear ornaments, Scott concludes from early European accounts, and as the plates in the Boxer Codex depict. Men had one or two holes per lobe, while women had three or four. Visayans at first contact wore earrings with or without pendants, which were held by tubular or folded wire pins slipped through the ear and fastened behind. The women wore ornaments in all of their ear holes. **Palbad** were the more delicate rosettes worn in the uppermost hole; **dinalopang**, were shaped like the yellow blossom of the dalopang (also known as **kastuli**, Urena lobata). **Kayong-kayong** was any pendant dangling from an earring, while **sangi** (i.e., divided) was a single ring worn in one ear only.

Pamarang or **barat** were large gold plugs, sometimes wheel-shaped, with a gem set in the middle. They stretched holes as wide as two fingers; some lobes were so distended that a person could stick his fist through. Similar forms appear in Indonesia (Miksic 1990: 33). In the Cordilleras, northern Luzon, there are still some individuals with large holes on their lobes.

Panika referred particularly to those finger-thick gold rings which were split on top to be fastened to the earlobe "like the letter O", Father Alcina reported in 1668, "without being able to see the opening once they were inserted." These penannular "barter" rings were thick as a finger, usually hollow but heavy enough to pull down the earlobe until the gold touched the shoulder. They were sometimes decorated with burit or granules. The men wore such single, heavy rings in the lower holes, called **(panikaan). Dalin-dalin** were simple hoops smaller than the **panika**, perhaps like those worn by T'boli women with multiple holes in their ears.

The multiplicity of elements, the sense of articulated movement and profuse surface decoration, belie the intial impression of insufficient ornamentatrion conveyed by many Philippine gold artifacts when examined singly. The vibrant complexity of the full-dress costumes of traditional Philippine groups today give us an idea of the total look that would have been achieved by prehispanic Filipinos.

Ornamentation was also used to indicate status. The measure of social prestige was in direct proportion to the amount of gold a person displayed. The wealth of regalia that constituted the Surigao Treasure gives us an idea of the height of the aspirations of the Butuanon royalty. Even the royal weighing scale pan is made of gold, as is the royal bowl, a skeumorph representation of a **bao** or halved coconut shell, the common man's vessel. There is a massive gold rim for perhaps a porcelain or wood vessel. This writer personally saw some other gold vessels or fragments thereof which went to private collections: a lid, a stemcup, a smaller bowl. There were reports of a plate or shallow dish.

The Surigao pieces were grander in scale. The usual gold clasps for royal belts (Mindanao languages: **kandit)** measured around 1 1/2 inches each side, and were apparently meant to secure a belt made of woven thread or fiber. In the Surigao examples, the clasps are dramatically larger, and the textile was replaced with "woven" gold.

It is true that gold belts have also been found outside of the Philippines. For example, along the Sungai Terus stream in the Merbok estuary, in Kedah, West Malaysia a boy fishing found a belt of woven gold wire, with a lion-head (singha-mukha) worked in the clasp in repousse, held together by a split pin (Harrisson 1968: 42). The interlocking pin-on-tube mechanism on its clasp, however, sets aside the Malaysian example from the Philippine type, which would have been held together by a cord made of organic fiber, knotted in some way.

Even tikus vine leglets, still worn by Manobo warriors (**bagani**) well into the 20th century, were found in the treasure as skeuomorphs in gold (Villegas 1983: 63). A Manobo epic mentions the tikus: "For he would fix his leglets,/ Showing much concern / Over his leglet trimming which if / disarranged, / Would make his foes laugh at him…" (Manuel 1976: 88, photos 30-31).

III

Gold Working Techniques

MINERAL PROPERTIES.

Gold has been called the eternal metal because it is chemically stable; neither hydrogen, oxygen nor nitrogen can dissolve it. Gold's supreme attraction is its high luster, or ability to reflect light, and its bright yellow color. It is exceedingly heavy, lighter only than lead and mercury. Pure gold has a relatively low hardness of 2.5 to 3.0 in the Moh Scale (Untracht 1968).

The high density and cohesiveness of gold's cubic crystal system makes it extremely malleable, flexible and ductile. Fine gold (represented as 999 or 99.9 % pure) can be beaten to a thickness of 0.000005 of an inch, to the extent that it is transluscent. It is very pliant and can be folded without breaking. Gold can be drawn into the fineness of a hair strand; one ounce (31.1 grams), can be drawn into several kilometers of wire.

Gold seldom occurs in a pure state in nature; it is usually found associated with other minerals. Gold in combination with other metals such as copper, silver, nickel and zinc produces particular colors and characteristics—varying melting points, hardness and malleability. As the percentage of metals alloyed with gold increases, the lower its melting point becomes: it becomes harder and less malleable, flexible and ductile.

STANDARDS OF FINENESS AND WEIGHTS

Malayan languages have a common indigenous word for gold, while the names of several other metals, such as silver and copper, are of Sanskrit origin. The Visayans called gold **bulawan** and fine gold **hinulawan**, presumably from **bulaw**, red or rosy, a color they often produced artificially with **porog**, ochre. The Tagalog term was **ginto** which presumably comes from the Chinese **jinzi** or **kintoy** (Scott 1992: 201).

In Indonesian, gold is **mas** and silver is **pirak** (**pilak**, the root of the Filipino word for money, **pera**). The ancient Indian system of weights applied to gold and silver currency was called the Manu system, with the **masa, suvarna, kati**. The **masa** was around 2.4 or 2.5 grams, which was in turn equivalent to 4 **kupang**. One **suvarna** was equivalent to 16 **masa**, and 16 **suvarna** constituted one **kati**. The last time the Manu system of gold weights was mentioned was in a Javanese inscription dated 1296. By 1350 Chinese copper cash had replaced the native gold and silver **piloncito** and sandalwood flower coins (Harrisson 1968: 38).

Most men could estimate gold content on sight, though they had touchstones (**sanitran**) to test its quality. The Tagalogs were said to have handled gold expertly, not only goldsmiths but even children weighed and assessed it accurately. They carried little scales and weights around with them in a special pouch to make on-the-spot purchase.

Gold dust was used as a form of currency, being weighed out when making purchases with little weights and scales carried by the customer. The basic weight was a little red seed called **saga** in Tagalog, and **bangati** in Visayan, probably Indian licorice (**Abrus precatorious**), known in English as jequirity beans. They are commonly used in the tropics as beads or weights.

Scott explains that Tagalogs reckoned gold at three **palay**, from **sangpalay** or **kapalay**, a grain of rice. A larger bean was **bahay**, worth three **saga**, and sill a larger one, **bulay**, was equal to three **bahay**. Heavier weights were those standard to Southeast Asian commerce--the **kupang, mas** and **tahil**. The **tahil, tael, or tae** was **basing** in Visayan, equivalent to the Chinese ounce **liang**. The **mas—amas** in Tagalog from Malay **emas**—was reckoned at 16 to the **tahil**. (The **mas** was equivalent to 4 **kupang**, and the equivalent of 16 **saga**.) The Tagalogs also called half an **amas, balabato**; 4 **mas, sapaha**; and 8 **mas**—that is, half a **tahil—paningan**. If the 16th century Philippine **amas** was the equivalent of the 10th century Javanese gold **masa** coin stamped **ma**, it weighed 2.4 grams. Philippine **piloncitos** were roughly made in similar weights.

There were also terms referring to purity. In the West, fineness is traditionally measured according to karats, an arbitrary system divided by convention into 24 units. If an alloy is 75 % gold and 25 % other metals (i.e., in ten grams 7.5 grams is gold and 2.5 grams is copper, silver or others), it is said to be 18 karats, and so forth. The terms used in the Philippines were **bielu** or **bizlin** and **malubay** for 10 karats; **linguingin**, around 13 karats, was used for

trade and barter; **panica**, called **orejeira** (earrings) by the Spaniards, about 16 karat fine; **ylapo** was 20 karats; and **guinuguran** or **guinogulan**, "lord of gold", about 22 k, used for the best jewelry.

The following terminology is quite similar:

Pure gold, **dalisay** or **urin buwo** (absolute standard)

Dalisay	24 kts.
Ginugulan	22 kts
Hilapo	20 kts
Panangbo	somewhat less than 20 kts
Panika	18 kts
Linggingin	14 kts
Bislig	12 kts

Scott explains that each of these categories was called "senior" or "junior" (**matanda** or **nabata**) in relation to the ones above and below it—for example, **ginugulang matanda** was **dalisay nabata**, and so forth. Below all these were **malubay** (weak), mixed with copper and reckoned as no karats at all, and **hutok** (bent over), mixed with silver and copper, hardly gold at all (called **del pais** in Spanish times; the Indonesians called it **mas muda**: "young" gold).

Some of these terms seem to reflect actual goldworking techniques: **ginugulan**, for instance, means 'purified'. **Panika** is a kind of hollow earring made by hammering a thin sheet of gold over a wax-resin mould, and it must at least be 18 karats to be soft enough to work. **Hilapo** (to wipe the face) may refer to the fact that 20-karat gold leaves a clear mark when rubbed on a touchstone, and **bislig** (hardened, petrified) suggests the stony hardness of the base mixture of 12-karat gold.

SMELTING AND ANNEALING

The first problem facing the craftsman was to convert native gold, usually found as small specks, into a workable mass. The process, called smelting **(pagbubo)** removed impurities, particularly base metals, which made the gold brittle and less workable.

For large-scale smelting (cupellation), prehispanic Butuanon artisans used large deep cups made of a porous, refractory clay; these were heated in a furnace (**dapugan**). Gold nuggets were melted together with lead in these crucibles to a temperature of at least 1,000 degrees. Mangrove, bamboo or coconut shell provided fuel. For smaller objects, lungpower and reed or bamboo pipes directed the heat; for larger objects, animal-skin bellows would have been used. The lead oxide combined with the base metals, separated

from the gold, and was absorbed into the clay. The purified gold remained and was poured out through a channel crimped in the rim.

For small-scale smelting, artisans used concave clay pot sherds (**palayok**) or bamboo segments. By introducing borax or even rock salt, which worked on the same principle as lead, they produced an ingot (tunaw or tiho) ready to be worked. Initially the metal was malleable. Hammering and shaping made it harder, though increasinglyh more brittle and liable to cracking, since working destroyed the original crstalline structure. By reheating the metal gently to a dull red heat (ca 900 degrees F), and allowing it to cool, a new crystalline structure was produced. This annealing process (palambot) was periodically done to return gold to its workable state.

SHEET PROCESSING AND CUTWORK

Ingots were flattened into sheets by rythmic pounding with stone, hardwood, and metal percussion tools (Bikolano: **toltog**). The sheets were cut with shears (**katli**). Radical attrition may have beeen achieved with metal instruments with a cutting edge, such as chisels (**paet**) and knives (**pangkayas**). Metal files and hacksaws were known, since we see some artifacts, perhaps of later date, with telltale marks. Burrs were further removed with burnishing tools (**pambuli**). Finishing was achieved with abrasives of decreasing touchness, tumbling, and polishing with leather and cotton.

Prehispanic artisans applied basketweave techniques on strips of sheet gold to fashion such whimsical jewellery as a circlet in the Olbes collection inspired by folded palm-leaf chains, or the diadem fragment reminiscent of mat-weaving.

Cutwork with the use of shears and scissors (**gunting**) was another technique used on sheet. In the Philippines, gold sheet was scissored to produce decorative elements, such as circular and lozenge-shaped spangles and textile appliques.

The most prominent use of the cutwork technique was on diadems. These were worn by persons of rank, including priestesses or healers. Curing ceremonies were performed in private homes, with the **katulunan** wearing a gold diadem (**basong-basong**) for first-class services, a simple one of palm leaves for the poor (Scott 240).

Most of the diadems which have survived were found with facial covers: funerary, art-in-a-hurry objects. Some were merely beaten out of already fabricated pieces; one example was fashioned from a bracelet.

Harrisson reports that gold diadems similar to those found in Southeast Asia were found in urn burials, which had ceased by around 1064 AD, in the Tinnevelly district of southern India. The Tinnevelly diadems are long,

thin, oval beaten gold plates, bound round the head of the corpse by a small gold wire. Some are simple ovals, and others have thin strips of gold extending beyond each extremity. A few have plain surfaces, but most of them have repousse linear designs of dots. They are like some found at Mycenae in Greece (Harrisson 1968: 54).

Funerary gold ornaments radiocarbon-dated to between 100 BC to 100 AD were also found in Gilimanuk, Bali, Indonesia. The practise of interring gold with the dead, as a means of securing higher status in the next world, continued to be used in Sulawesi until the 15th or 16th century, being found together with porcelain of the Ming dynasty (Miksic 1990: 41-42).

In many examples found in the Philippines, folding before cutting was employed to produce symmetrical designs. The folds were often left in the diadems to form part of the design. Edges were cut at regular intervals or serrated; parts were bent forward alternately, to create depth and visual interest. The swirls and waves in the crowns required more effort and concentration. First, the design had to be scored on the sheet. In the areas to be trimmed away, holes were pierced so that the scissors point could be introduced. In some examples, a chisel may have been used to effect the cutwork.

The archeologist Harrisson had found "leaf-shaped gold foil" in Jaong, Sarawak, in the 1960s. Harrisson associated the sheet-foil-leaf technique, as found in Jaong, to earlier technological phases. "Clearly the Jaong median cut-breach and other forms represent something basic, localized and 'primitive' in the sense of a prime relationship to a resident, native people operating a native, inside ritual discipline relatively 'unsophisticated' when measured against the outside standards of Buddhism or Hinduism…As a whole the gold at Jaong belongs to a system of ritual iconography that is presently…enigmatic, closed and recondite.."

He realized what their function were when he saw the set of gold eye, nose and mouth covers recovered from a 14th-15th century grave at Oton town, Iloilo province, Panay island, central Philippines, illustrated in an article by Alfredo Roces (Harrisson 1968: 55). The Oton eye cover, recovered from a skull, consisting of gold foil cut into two leaf-shaped elements, joined by a strip that was placed over the bridge of the nose, like one in the BSP collection. Linear detailing gives a schematic rendering of an eye and the perimeter of the object is bounded by repousse dots.

Harrisson noted that some of the gold-leaf foil from Jaong also had an inside slit or breach cuts which clearly suggest eye-slits. The median cut-breach is the dominant theme of decoration, occurring on almost a third of the 50 or so objects. "The sawtooth effect… particularly dramatizes, albeit in miniature, the attention paid to the technically simple convention. It provides, too, a highly recognizable form which can hardly occur regularly in different places by chance" (Harrisson 1968: 29).

There is clear evidence that Southwestern Borneo and the Philippines shared a system of conventions for the funerary facial covers.

In Bongkisam, a later site in Borneo however, gold foil is still dominant but differently used. It must be seen as a continuation, as the next

phase, under new and more external influences. Before craftsmen lay the temple foundations, priests cut pieces of gold foil into geometric, human and animal shapes, some inscribed with sacred characters, and buried them with rituals under the foundations. In this way, the priests created hidden patterns or mandala, so that the temples became symbolic models of the universe, where the gods may descend when invoked (Miksic 1990: 18).

The non-representative concept of the slit breach gives way to something much easier to read and interpret—elephants, moons and men. In Bongkisam, the cut-out gold leaf figures can be connected directly to the late Buddhist traditions found in much of Southeast Asia. "As a group they serve, along with the silver box containing the golden linga and numerous small pieces therewith, to consecrate some sort of Buddhistic movement at its furthest eastern periphery" (Harrisson 1967:31).

Perhaps further analysis of Philippine cut-sheet ritual objects already collected, and future finds, will prove Harrisson wrong and show that the consecration of a Buddhist shrine occurred further east and to the north.

JOINING

While the range of objects that could be made from a single sheet was considerable, cutwork was only capable of realizing designs in two dimensions. Many designs required unit construction to achieve three-dimensional volume. This was done by folding and hammering joins, or riveting, pinning, or sewing pieces together with gold wire. Some long bead types were made of sheet cut into rectangles, curved with the ends interlapped, and then shaped into cylindrical, or cornered tubes. These were inherently weak, and might have been reinforced with wax or pitch filling.

The widespread use of fuse-welding by ancient Philippine artisans sometime in the middle of the first millennium BC revolutionized jewellery workmanshiop. Fuse-welding, or colloidal fusion welding **(paghinang)** exploited a particular metallurgical principle. The technique has several variations.

In one procedure, heat was first applied on the surface of the pieces to be joined, thus producing firescale or copper oxide. A colloidal organic binder—glue obtained from animal hides, fish or seaweed (**agar-agar**)—joined the pieces mechanically. They were then heated in a reduction atmosphere (with low levels of oxygen), which was probably achieved simply by covering one potsherd with another. In such a miniature furnace, the rising temperature carbonized the organic glue, which evaporated as carbon dioxide. Once the edges to be joined were in a molten state, contact alloying took place. That is, through capillarity, the atoms of the copper and gold interpenetrated, or fused. There would be little or no evidence of a join.

A variant technique was soldering (**paghinang sa tubig**) or "joining by water", a term explained by the procedure. The principle of soldering consisted of joining two units of gold with a filler, an alloy of lower karat and therefore, a lower-temperature flow point. If the pieces to be joined were 18 karat (75 per cent gold), the solder **(panghinang)** was around 16 karat, or ten per cent less gold. The solder was reduced to powder by a file, and suspended in a watery solution that included an organic binder and flux. The latter was a form of borax (**sodium tetraborate,** $Na_2B_4O_7$), a volcanic by-product, which facilitated joining. The minute particles of gold flowed at a lower temperature and joined the pieces without fusing them.

In joining, the craftsman needed skill in relating heat and mass. The direction and duration of heat had to be deftly determined, since a smaller mass tended to reach a critical temperature more quickly than a large mass. Miscalculation might mean the ruin of a work in progress, or mottling and warping. In sheet-welding, one technique was to segment the edges of unequally-sized sheets in reverse proportion and to interlap them **(pagsapi),** which also made for a stronger join. The lapped join was also used in hollow construction. Angles were not joined edge to edge, but edge over edge, as in hollow rings and dagger handles. Segmented lapping also created escape vents for the trapped air, which could expand when heated, causing rupturing.

CASTING

Prehispanic Philippine artisans employed gravity-pour casting **(pagbuhos)** to produce a finished product. Blowholes and pitted surfaces resulting from gases trapped in the mold characterize casting..

There were two types of finished-product mold casting. The first utilized a reusable complex mold made of heat-resistant material, and composed of several fitted parts, within which was carved the shape of the object being cast. After the metal was poured and had cooled, the mold was opened and the object removed. A part of a soapstone (steatite) complex mold has been found. The presence of casting seams, caused by minute gaps between parts of the complex mold, would indicate the use of this mold type. Although such seam remnants were invariably trimmed off and polished, traces would still show upon close examination.

The other type of casting utilized an expendable, continuous mold made of clay. A model of the object to be cast was made first, usually in wax. The model was covered with clay and heated, so that the wax melted and ran off (thus the procedure is called "lost wax", or in French, **cire perdue**). Gold poured into the cavity assumed the shape of the original wax model. The casting was retrieved by breaking the clay, thus destroying the mold.

Aside from the fact that more detail was possible with the lost-wax mold, there is no way of distinguishing its product from that of the complex mold. On the whole, however, neither method of casting seems to have been often used in the Philippine tradition, except for some finger rings. In those pieces which may have been made in this way, not all of the characteristic pitted surfaces and blowholes that resulted from casting final objects could be eliminated.

A bangle with zoomorphic terminals, together with other finds from the Lumbang river, where the Laguna Copperplate Inscription was found, are examples of prehispanic cast gold. The Lumbang artisans did not conform to the mainstream of the Philippine gold tradition. There are no extant examples of gold artifacts fashioned through lost-wax casting from the hispanic period. Apparently no casting terms were defined in the early colonial dictionaries.

FORMING BY DEFORMATION

More often than casting, prehispanic Philippine artisans seem to have employed the combination of ingot casting and forging **(pagbuhos at pagpale).** In this process, pour-casting into a mold produces not a finished product, but an ingot shaped as closely as possible to the intended form. The ingot is then forged. Gold can be reformed without rupturing by taking advantage of the plastic flow of the metal's atom bonds and its crystalline structure. Forging utilizes the metal's ductility and malleability by exerting compressive force upon it, mainly through the intermittent blows of a hammer **(pamukpok)** and the use of punches **(dunsol).**

Casting and striking **(buhos at palo)** may have been used in the manufacture of **piloncito** ingots, the earliest Philippine coinage (Legarda 1976). The ingot mold, probably metal, appears to have been produced by boring two holes at an oblique angle to each other, which were then enlarged with a chisel or cylindrical rotary file, creating a double depression shaped like the number 8. The double hole was enlarged with a rounded drill bit. The tricky part was to make sure that the cavity produced an ingot of the required standard weight. Molten gold was then poured into the mold. Before the ingot cooled down completely, the metal was branded, or struck, with an iron tool incised with a letter in an ancient script.

The Samar electrum (gold and silver alloy) double-swirl amulet is also a product of the casting and forging technique.

The Kalinga bracelets are masterpieces of casting and forging. These bracelets were found in a field being plowed in Baggao town, in the Cagayan Valley, northern Luzon, with no associated imported cramics by which gold artifacts are usually dated. However, this writer suggested a dating of AD 500-1000 (Villegas 1983: 90-91), although the editors removed the question mark that qualified the statement. Soon after, Benjamin Abellera informed me that in

the course of researching on northern Luzon trade beads, he had been shown similar bracelets still being guarded as a clan's treasure in a Kalinga village. The population in the western Cagayan Valley would have been Kalinga, though in avoiding repressive Spanish measures, the more tradition-bound would have retreated to the hilly areas of the Mountain Province. His information includes the names for each type (one is "goose neck" in Kalinga) and is contained in his master's thesis, (University of the Philippines, Baguio City). Another hoard surfaced in the market in the late 1980s, which included two bracelets (now in the Benjamin Yap collection) and several worked wire waist ornaments (now in the Margarita R. Cojuangco collection). An obviously later piece from Tabuk also surfaced recently, and is now in the Que collection.

We can reconstruct the fabrication procedure through the evidence of the hammer marks on the Kalinga bracelet. Starting with a substantial amount of gold, a rectangular ingot was formed by pouring molten metal into a double-plate iron mold. The long slab was then forged laterally with a ball-peen hammer on the front, and small rounded punches on the back. This was done in such a way that the slab gradually became rounded into a bracelet shape. The two ends were joined, and the shape was further refined on a staked anvil. The scalloped edges were cast, fused into place, then hammered to shape.

Another deformation technique produced sheet gold. The deceptively simple earplugs identified with Cuyo, Palawan and western Visayas called for highly developed skills in forming gold sheet. The work may have begun with an ingot cast like a doughnut. It was inserted into a mandrel and punched laterally, to induce a convex form. It was then removed from the mandrel and the rims were hammered against an anvil to compress and widen them. The procedure was repeated until the desired form was achieved. The uninterrupted plasticity of the form is proof of the artisan's mastery of the technique.

Some of the penannular rings **(panika)** and bangles of rectangular or elliptical scroll-section, with open inner seams, were made by working gold sheet rounded against lead, after which the gold was pried away; or against resinous pitch **(sahing)** which, after the gold had been shaped, was heated and allowed to run off.

Raising **(pagbangon)** was an important forming technique, in which sheet gold was worked against a yielding material. The tool produces a raised effect on the sheet's verso. A basic application of this technique was to achieve doming **(paghutok),** such as in the fashioning of a rounded button, and the bowl in the shape of a halved coconut shell (**bao**). Dot-punching **(pagdutdot),** as seen in the sectional cuffs, was an extended application of raising, working both sides of the sheets. Use of a stylus-like blunt instrument on gold sheet in a continuous linear movement with forward pressure accomplished scribing **(pagguhit).** The other Mindoro sectional cuff combines scribing with dot-punching; this may even have been done freehand, working the gold against leather or thick textile.

Repoussage **(pagtukol)** was the most sophisticated application of this technique, to achieve three-dimensional configuration. In repoussage, the sheet was worked against lead or white pitch **(sahing)** or Manila elemi, derived from the trunk of the **pili** tree **(Canarium luzonicum; Canarium ovatum).** Filipino artisans today use **sahing** colored with red oxide, so that gold can be better seen against the material as the design is raised. The sheet was then turned over and chased **(paghabol)** to bring figures out in relief.

The massive gold buckles were created by laying out a long sheet on pitch. The compositional outline was scored with a sharp point. A tracer punch worked the general features, and specific punches worked out the shapes. The sheet was turned over, and chasing tools defined and added very fine detail. The worked front was then folded over the plain back and the edges pierced, so that the sash material could be sewn on.

GRAVURE

Two types of gravure were used by Philippine artisans. The first was engraving **(pagpaet),** or the removal of metal with a linear movement and forward pressure. The second was chip carving (**pag-ukit**), which involved removal of metal in volume from the mass.

Engraving involved the movement of the graving tool away from the wielder on thicker gold sheets, as in the massive barter rings, or the gadrooned Kalinga armlet. The thick tops of seal-type rings also permitted engraved inscriptions.

Chip carving required solid chunks of material, which made massive jewellery costly, too heavy and often unwearable. Repoussage and unit construction were usually used instead to achieve volume, as in the bird motif dagger handle. Conical ornaments, which may have been slipped into cord ends, or into the corners of head cloths, were used as weights, and were made heavy on purpose.

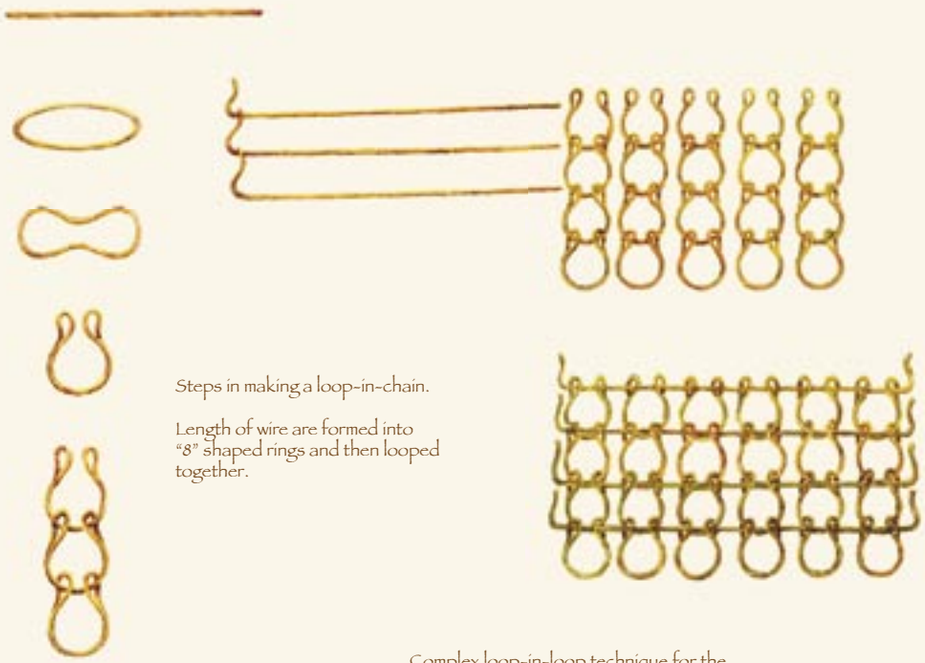
The archeologist Harrisson found such weights in Limbang, on Brunei Bay, now in the Brunei museum. "These are three-tiered, solid gold pieces with a wide slit right down one side. The Locsin collection has one exactly like these two in shape, style, texture and finish, but of two tiers instead of three. It was found inside a jar at San Juan, Manila, probably therefore a cremation or secondary burial—but no details are available. Two others, one of two and one of three tiers from Luzon, have the surface delicately decorated…a feature not known in Borneo. The second Limbang piece closely matched are several large Limbang rings with pronounced shoulders…The group as a whole closely resemble a cache found at Fort Canning on Singapore Island around 1928, and several from Java in the Franks collection in the British Museum. The Locsins have one definitely of the same 'group' with the same shoulder and style (Harrisson 1968: 78).

WIREWORK

Wires **(kawad)** may have been produced by ancient Philippine artisans by beating an ingot into a rod, then rolling the rod between two slabs of stone or hardwood. The rounded rod may have been further refined by drawing it through a graduated series of holes pierced through stone or metal, or a drawplate **(batakan).**

Massive wires were used for the early Samar electrum amulets that are similar to ones found in Java. Another technique shared by the Javanese with their Philippine counterparts made use of twisted wire wound over a thicker wire. Some conical necklace finials were made of coiled wire.

But Philippine artisans surpassed the Javanese and all other classic Southeast Asians in their mastery of surface decoration and granulation, called **burit** (Fernandez and Koback 1984: 312). A Bulacan master craftsman now in his mid-forties, who learned his craft from an uncle who would be in his nineties now were he alive, had been taught these terms with the art. In an interview, the craftsman was using these terms before this writer encountered them on paper.



Steps in making a loop-in-chain.

Length of wire are formed into "8" shaped rings and then looped together.

Complex loop-in-loop technique for the "woven" sashes:
Looped "8" rings are looped with each other to make the vertical rows. These are in turn pinned together with long "8" lateral pins which are looped at the sides.

The technique is akin to **filigrana** (derived from the Latin **filum**, wire, and **granum**, granule). The concept behind filigree-work, however, is to "capture air", that is, **a jour** or see-through construction. Wire-work and granulation are made to define empty spaces. Philippine artisans sometimes used open filigree work, often in beads. Filigree beads found in the Bicol Peninsula, in southern Luzon island, associated with earthenware secondary burial jars (ca. 200 BC-AD 200), are very similar to those found in Taxila, dated ca. 300 BC and in China, dated Han dynasty (Gyllensvard 1953: 72-73). There are tubular ones with similar construction but of later date (Mascuñana 1978).

Usually, however, Philippine traditional wirework consisted of surface decoration over a sheet, and included distinctive components such as flattened disc and lozenge appliques used as discrete elements, and long, narrow crimped bands of sheet gold, such as in conical necklace finials.

Inimitable results were achieved by Philippine artisans by applying textile techniques to wirework, to produce a "woven" effect. To fabricate necklaces, wire was cut into certain lengths, formed into ellipses, and pressed at the waist to form an '8.' Both ends then were bent to form a 'U.' These were then looped into each other, so the process is called the "loop-in-loop" **(suot-suot)** technique. The looping may be one-on-one, as well as one over one, resulting in a four-cornered chain. When the wire was more intricately looped with the use of jigs **(suotan),** three-cornered and rounded "snake" **(inahas)** chains were achieved. They were planished after linking to induce regular formation. The bending gave rise to the necklace's Bicolano term, **pinarugmok,** "made to surrender" (Fernandez and Koback 194: 318; related to Filipino **lugmok**, bowed in surrender). Some **pinarugmok** were so fine, using wire less than 0.25 m in diameter, that the Spanish chronicler Morga described them as spun silk (**ceda hilada**).

By far the most spectacular use of the **suot-suot** technique was in the sashes. The basic technique consisted of successively looping parallel lengths, thus constituting the "warp"; and long '8' is looped across, holding them together, constituting the "weft". The artisan of the largest sash dazzles us with his grasp of the technique by his introduction of an elegantly simple innovation that produced marvelous textural variation. He caught several "weft" threads with turned baluster beads, creating a contrast between lateral and longitudinal visual orientation, between the fibrilous luster of wirework and the serrated shine of tubular sheet. Another belt seems less astounding because of its smaller size and more delicate construction, but to achieve those edges in-the-round, which lend visual depth, so much time must have been consumed.

GRANULATION

Wirework was used in conjunction with granulation in **burit**-work. The technique utilized small, solid spheres or granules of gold fused in a pattern. In some Philippine examples, the granules are fine enough to number 900-1000 per square centimeter.

There were two ways of producing granules. In one procedure, a thin sheet of gold was snipped crosswise and lengthwise to produce units of approximately even size. They were laid on a bed of charcoal in a crucible, and the vessel was filled with alternate layers of gold and charcoal. Heated, the gold melted into minute spheres; the charcoal was then washed away. The other procedure called for molten gold to be poured from some height into a smooth surface of stone or hardwood. The granules were then selected manually or sized through a series of sieves.

Using an organic glue, the granules were then arranged in patterns over a sheet ground, then heated until joined. Granulation was arranged in linear schemes **(pahanay)** or massed **(pulo-pulo, pinoro).** Linear application was used in serial arrangements to delineate borders or forms. The granules themselves might be used to create the figure (positive formation), or might be used as background, defining areas of the bare sheet to form the design (negative formation).

Perhaps one of the most beautiful examples of granulation work is that on a pair of conical necklace finials in the Bangko Sentral Gold Collection. They are larger than usual, but the granules are extremely small, and finely composed to create dancing human figures, each hand snapping long banners in the air. They are dancing around the archetypal Tree-of-Life, symbol of the highest unity, the totality of both the upper and the underworlds, the source of all that lives, of all wealth and welfare.

Aside from linear arrangement, the artisan of these finials also designed **pulo-pulo,** using an oblique, instead of a grid, system for massing. Characteristic patterns employed the triangle **(patampal;** Malay, **tumpal)** and lozenge **(hilis-kalamay),** as in necklace finials. There were also hexagonal systems or rosettes (pabulaklak). Three-dimensionmal systems of granules on top of granules **(patumpok)** were also used. Examples of what the Italians call **pulviscolo**, or random massing, have also been found, but the technique appears to have been experimentally used, and not a usual part of the repertoire of surface treatment favored by Philippine artisans.

One technique used to join massed granules was to first fuse them in the desired pattern over a sheet of mica, or any other material to which the mass will not adhere when heated. The mass then formed a single unit to be joined to the larger mass.

This may have been the technique used to construct the granulated tubular beads. The procedure began with the fashioning of a charcoal or clay soldering block with a circular groove. Granules of uniform

Steps in making interlocking beads:

Granules are formed into a ring

A wire ring reinforces the inside circumference

Two rings are stacked together and fused

The outside surface is smoothed and polished

size were arranged in this groove and fuse welded. Successive rings were placed one on top of the other, over a tubular sheet in the case of a backed bead, or directly over an expendable core that was separated from the bead after fusing.

The interlocking dentate bead necklaces (**kamagi**) were constructed in this manner, but the soldering block had a circle of holes to hold the granules in place while they were being fused onto a flattened wire rondelle. The necklace fragment with large units illustrated typical construction. Some examples were composed of two, even three inner layers of graduated granules. In what may be described as artistic masochism, the granulated texture of the outside surface was usually removed, through manual and then mechanical means. The last step involved drawing the whole length of the necklace through a drawplate, as can be seen from the assymetrical deformation of the granules, as a result of simultaneous lateral and longitudinal pressure. That these procedures removed half of the granulate surface is only apparent after long and close inspection. The large necklace in the Bangko Sentral collection used around 4,500 granules. The graceful austerity of the **kamagi** was achieved only after many hours of meticulous craftsmanship.

Just as much time and effort was required to create the dragonfly (**tutubi**) necklace, which used around 7,000 granules. It was meant to be worn as a choker, high on the neck. The articulated pendant beads would tremble with every move, as if hundreds of shimmering butterflies hovered around the wearer's neck.

Each pendant bead element has three basic parts: the tube through which the thread is passed; the granulated surface ornaments, welded directly onto the tube, or massed onto a sheet applied over the tube; and the long, tapering pendant component, made up of granulated spheres, with the last few on the proximal and distal ends flattened. A variant of the **tutubi** beads were the snail (**suso**) beads, which were composed of bigger granules.

The terms **tutubi** and **suso** were coined when these artifacts first surfaced in Samar in the late 1970s, and in northeastern Mindanao in the early 1980s.

The majority of the complete necklaces of **suso** in Filipino collections are forgeries. They were made by the centrifugal casting method in the late 1970s and again in the early 1980s in Meycauayan, Bulacan province, the jewellery-manufacturing center of the country (Villegas 1982). A Javanese type is documented (Miksic 1990: 46).

TUBING

Tubes (**balumbong**, bamboo-like) are hollow pipes of uniform wall thickness and diameter throughout their length. They were manufactured by shaping a sheet over an interior core of metal, reed or rounded bamboo, then passed through a drawplate. To produce beads (Pl.), foil sheet was drawn with a lapped seam, fused, then cut. Tubes were sometimes welded side by side in complex variations to form dividers.

The earrings and bracelets with a half-round cross-section may have been manufactured by extrusion **(patulak)** rather than by drawing **(pabatak).** The shaping channel had to be at least one-eighth of the curved length of the desired circumference of the finished product. A mandrel (made of a metal which would not deform as easily as gold) with the same curve radius, but with a circumference smaller than the shaping channel, was then fashioned. The sheet, cut to the size of the desired circumference and wrapped around the curved point of the mandrel, was then pushed into the shaping channel. The downward pressure of the mandrel extended the sheet near the outside circumference, while the mandrel and the upper sides of the groove provided a counterpressure to compress the inside walls. The extruded penannular tube would be slightly askew, but could easily be manipulated to the correct form.

The barter rings or **panika**, usually associated with Ming dynasty material, were drawn tubes with open seams. An inner core of copper, long enough for either end to be handled, may have been used. The tube was bent around an anvil, with care being taken to keep the open seam 90 degrees away from the point of contact between the tube and the anvil, since the inner and outer sides were subjected to diametrically opposed stresses. The open seam lessened the chance of fracture. This was particularly important because barter rings were made from thicker sheet. Later, they were made with **tumbaga,** an alloy sometimes with more copper than gold. This type of alloy required constant annealing.

LEACHING AND FIRE GILDING

The surface color of some barter rings and certain other forms of jewellery associated with Ming porcelain (from the latter 14th century) was enhanced by a technique called depletion gilding, or leaching. It created a final surface of nearly pure gold on objects made from even low-gold content alloys, particularly low-karat gold and copper mixes which are now referred to as tumbaga (Fernandez and Koback 1984: 308-9; 314. For the coloring technique in Malaysia see Hajji Ali 1988).

Depletion gilding involved three steps. The object to be gilded was heated in a kiln to 648 degrees C (1200 degress F), which caused the copper molecules in the outermost layers of the alloy to oxidize and form a firescale on the surface. The object was next immersed in a hot acidic solution, made perhaps from the sap of **kamyas** (**Averrhoa bilimbi**) or **balimbing** (**Averrhoa carambola**). The acid dissolved the firescale and leached out the surface copper, exposing a greater number of gold molecules. The surface was then burnished (**pagbuli**), which gave it the appearance of pure gold. The process used by the Ivatan people of Batanes islands, north of Luzon, was to coat the object in red clay, heated over a fire (Dampier [1697] 1971: 95).

tumbaga was "valued as highly as gold, not for its preciousness as for its medicinal properties…they protected against ill winds which cause spasms and malignancies

Tumbaga, which is an alloy of less than 60 per cent gold and the rest of copper, was also called **suasa** in Malay. It must have occurred in nature. Scott understands **tumbaga** as a form of adulterated gold—which is what it was in the Philippines, by the turn of the 20th century: a man-made alloy of copper and gold, producing a pink metal. The alloy was also appreciated for itself and was not always made to appear to be of higher gold content. Alcina (1668) reported that **tumbaga** was "valued as highly as gold, not for its preciousness as for its medicinal properties…they protected against ill winds which cause spasms and malignancies…"

The term is present in South America and in Southeast Asia. It is derived from the Sanskrit **temraka,** and therefore could have gone by way of Arabicized Spanish or Portuguese, and thereby to the New World. There, it referred to a natural alloy of copper with some gold, which was then leached. The product had a film of high-karat gold, but was mostly copper inside. Iberian traders may have brought the term, via the Indian Ocean, to Southeast Asia. However, it is interesting to note that the prehispanic **panika** or barter ring ear ornaments were leached in the same way as South American gold. Prehispanic cross-Pacific cultural exchange between Samar and Latin America would be more implausible than the assertion that the term originated in Southeast Asia, and travelled westward, where it was corrupted into the Sanskrit **temraka**, onto Spain. The **conquistadors** may have used it to describe South American artifacts, and crossing the Pacific, came full circle back to the Philippines.

Tumbaga differs from **kalawanging ginto** or rust-finished gold, where a reddish patina covers the surface, pooling in crevices and recessed

areas. To produce the effect, two steps were involved. First, immersion in acid depleted or leached out what little copper there was on the surface of an object made of over 60 per cent fine gold. Second, the object was then boiled in a solution of water, organic acids and sulphur in an earthenware vessel, further reducing traces of base metals on the surface. Exactly what happens is not clear, but the presence of acid suggests that some form of oxidation takes place; the presence of sulphur indicates that a metallic sulphide coats the surface of the object. However, it is claimed that various combinations of proportions of alum (**tawas**), and common salt and borax can produce the same effect. The color of the gold objects could also have been enhanced with red organic pigments, with alum or salt as the mordant or fixative. Gold finished with a rusty patina are seen particularly in Ayuthaya, the Peranakan, and colonial Indonesian and Philippine pieces from the 17th to the 19th centuries. The three colonial pieces in the Bangko Sentral collection all have this enhanced reddish patina.

One ear ornament in the Bangko Sentral collection has a thick film of gold over copper or bronze. The gold is perhaps too thick to be the result of depletion gilding, and may have been produced through mercury amalgam gilding, or fire gilding (**dorado del fuego**). However, as far as we know, the process was known only in hispanic times. The technique involved amalgamation of gold with mercury, applying it over the copper or bronze object, and moderately heating the piece. The mercury vaporized, leaving behind a film of gold. However, mercury did not occur naturally in the

Philippines: the early colonizers had to import the element from South America, and later Japan. This artifact therefore, may be dateable to the 16th or 17th century.

STONES AND SETTINGS

Gemstones were worn for amuletic properties they were thought to possess. Garnet, rock crystal, amethyst, mica, jasper and pyrite were found locally and used in jewellery. (For the supposed properties of gemstones used in the Philippines, together with the survey of local gemological resources, see Villegas 1983: 18-19, 23. For lapidary techniques see Fox 1977a and 1977b. For evidences of lapidary work in Butuan, see Ronquillo 1987: 76). No prehispanic example of pearls (**mutya**) used in jewellery has been found, although pearls were mentioned in prehispanic Chinese accounts and were featured in Spanish trade lists. Corundum (sapphire and ruby), jade, carnelian, garnet and other stones that traditionally come from peninsular Southeast Asia, Sri Lanka, India and western Asia, were traded in. Many 'stones,' such as those in the center of the sash buckles and the bracelets are paste.

Most stones were cabochon-cut, that is, smoothly polished like a bald pate. Micas, reworked glass, jasper and pyrite were table-cut: that is, sliced or ground into flat slabs and cut with perpendicular sides. The latter two stones have been found cut and inlaid in checker pattern. There are some rare examples of imported intaglio or engraved carnelian seals.

Stones were set with a perpendicular collar (**pinaligiran**); with a chamfered collar (**pakalupkop**); with claws (**pangipin**, with "teeth"); with the stones' bottoms flush to the mounting (**pakubkob**); or inlaid (**palubog**).

In ear ornaments and clothes fasteners, the collar served only an aesthetic function, since the gems were fixed by means of resins (**sahing**). Even irregular pyrite crystals were encased this way, with the adhesive filling gaps, although sometimes the collar was molded around the rough stone. In the case of cabochons, the collar was chamfered all around, segmented, or cut into prongs or claws. Others were stones mounted gypsy-style, with no protruding collar, or set flush with the metal.

IV

Ancestral Gold

BEYOND BUTUAN

The first European colonizers described, as they went about in the Philippine islands, the gold ornaments and technology that we now know had originated a thousand years earlier, when Butuan was a city of gold. But at Spanish contact, the Butuan realm already possessed little of its former power, though its people continued to extract gold from the earth. Early Spanish accounts noted that "Moro" traders in the Butuan harbor were buying gold and beeswax.

The earliest Western accounts—Pigafetta in 1525 and Saavedra 1527—reported the sighting of significant amounts of gold wherever the expeditions went. Succeeding accounts gave more details on the gold industry in Luzon (Ilocos, Pangasinan, Benguet, Cagayan, Nueva Vizcaya, Paracale in Camarines Norte, and Catanduanes); Visayas (Samar, Leyte, Masbate); and Mindanao (Butuan and Surigao).

Pigafetta noted, "Those people are heathens, and go naked and painted. They wear a piece of cloth woven from a tree about their privies. They are very heavy drinkers. Their women are clad in tree cloth from their waist down, and their hair is black and reaches to the ground…" But, the Italian adds, "They have holes pierced in their ears which are filled with gold."

Of their Butuan visit, Pigafetta recounts, "Pieces of gold, of the size of walnuts and eggs, are found by sifting the earth in the island of that king whom I led to our ships. All the dishes of that king are of gold and also some portion of his house, we were told by that king (Raja Siaui) himself. According to their customs he was very grandly decked out, and the finest looking man we saw among those people. His hair was exceedingly black, and hung to his shoulders. He had a covering of silk on his head, and wore two large golden

earrings fastened in his ears. He wore a cotton cloth all embroidered with silk, which covered him from the waist to the knees. At his side hung a dagger, the shaft of which was somewhat long and all of gold, and its scabbard of carved wood. He had three spots of gold on every tooth, and his teeth appeared as if bound with gold. He was perfumed with storax and benzoin. He was tawny and painted all over. That island of his was called Butuan and Calagan."

The Spaniards were shocked. Scott observes that, "Spaniards kept reporting gold jewelry in truly astonishing quantities. They were struck not only by its amount and wide distribution, but by the fact that it appeared to be part of the normal attire of persons otherwise almost naked."

In their view, the near-nakedness of men and women was the final degradation of Adam's children, while gold jewelry in Spain was associated with a well-clothed Christian elite. Yet here they were combined in the same persons. "So too, modern Filipinos would be shocked to meet their sixteenth century ancestors. In the sharp distinction they make between civilized and uncivilized, G-strings are characteristic of the latter. Yet their forefathers were proudly wearing the bahag from Saranggani to Aparri, slaves and datus alike. Worse, Rajah Humabon's tattooed body, decorated teeth, shoulder-length hair, and distended earlobes would now be regarded as marks of sheer savagery "(Scott 272)

Alcina, who was in the Visayas from 1634, admired the quality of ancient Visayan goldwork: "The many different kinds of large and small beads, all of what they call filigree work here…is clear evidence that they did careful, delicate and beautiful work even better in their antiquity than now, since all the ancient goldwork is of higher gold content and craftsmanship than what is being made now…[like the **kamagi**], a piece of jewelry of greater value and curiosity than could be expected of a people apparently so crude and uncivilized"

Alcina would not be the last person to see a contrast between the level of Visayan culture and the perfection of their goldwork. As more and more elegant goldwork would later be unearthed, the opinion came to be expressed that the 'low level' of pre-hispanic Philippine technology made it impossible for the Filipinos to have produced such sophisticated jewelry. But the logic is dubious at best: many nomadic barbarians have produced very fine jewelry (Scott 68).

This essay has been an attempt to transcend the discrepancies between previous histories, many of them written by prejudiced Europeans, and the glinting reality of prehispanic Philippine gold artifacts. By their very presence, they constitute a text that has compelled this close and careful reading.

A GOLDEN LEGACY

This narrative of the cultural context and the materials, design principles, procedures and techniques of prehispanic gold artifacts must be subjected to further study and validation. Nevertheless, it gives an idea of the complexity and sophistication of the Philippine gold tradition.

The following features of the industry seem clear. The relative abundance of native gold made possible the development of a strong local industry. Constant internal demand and an active external market facilitated the invention and transfer of advanced skills in the extraction, processing and manufacturing of finished products of gold. Finally, the comparative range and breadth of development of the Philippine gold industry, taken as a whole, was exceptional and unique in Southeast Asia.

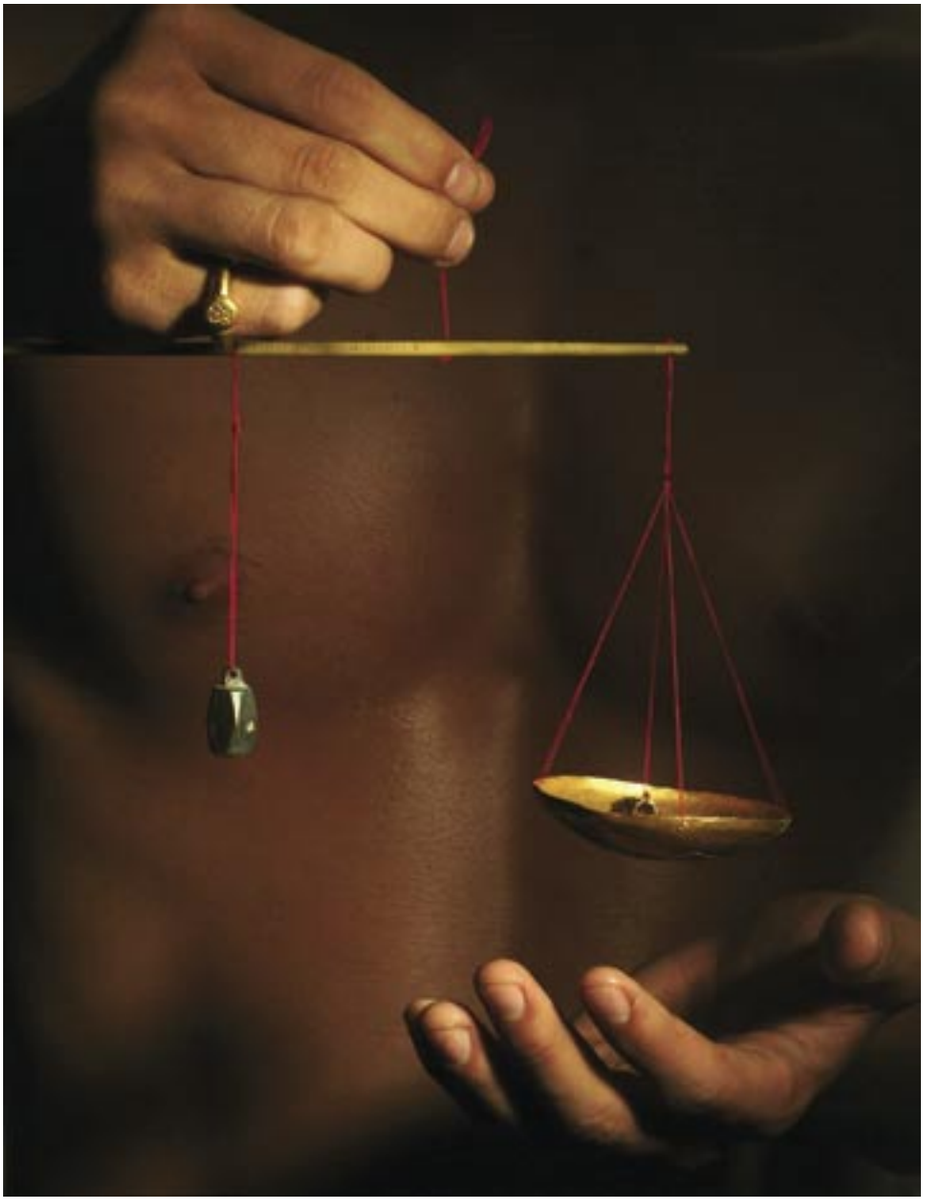
These statements led to the propositions presented at the outset of this essay. Gold was a major impetus in the opening of the Philippines to regular international trade. This led to interaction and cultural exchange—with gold technology transfer only one feature—within the area and with other civilizations in the region, and probably beyond. The archipelago as a whole remained largely free of direct foreign domination, which permitted selective acculturation and the development of a classic Philippine culture and art tradition, formed from a synthesis of diverse cosmopolitan influences and built on indigenous foundations.

Classic Philippine gold ornaments fascinate the world today because of their universal value as artifacts of beautiful form and technical ingenuity. For Filipinos however, the appreciation is deeper. In rediscovering these ancestral treasures, they find themselves not only heirs to a land of gold, but also possessed of the legacy of a golden age.

BANGKO SENTRAL NG PILIPINAS

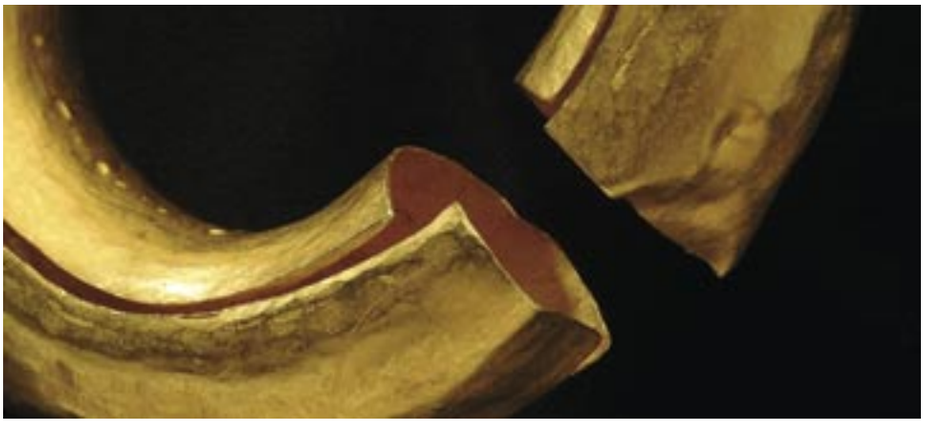
The Gold Collection

A view of the below-ground vault where the Bangko Sentral ng Pilipinas Gold Collection is on permanent exhibition.



Right page: Gold was ornament, but also a measure of economic and political power. From the Surigao Treasure, a gold weighing scale pan, a golden bowl, and a gold neck for a jar. The pan would have been used with a marked stick such as this 17th-18th century piece, **above**, made of bone, and a counterweight. Among the regalia is a ritual bowl the size of a halved coconut shell, which is what commoners would have used. The jar fitting would have had a lid, which has been lost.

Gold was currency as well as jewelry. **Left page:** At the *top*, two pairs of penannular rings, with seams at the back. They were formed through a combination of hammering and extrusion through a metal block. They may have been worn as pairs or single earrings, or used as barter rings, *below*. The form was first recorded in Africa, and through the Indian Ocean trade reached Southeast Asia. **Above:** Ear ornaments made of solid gold, except for the *top* piece made of copper, with a thick gold skin.



This spread: Massive penannular gold barter rings. Rings, also in other metals, were used for exchange since Egyptian times in Africa. The form reached the other side of the Indian Ocean, up to East Asia. The great value of these barter rings suggests a major transaction, perhaps a dowry for a royal wedding. Note the wave-like engraving reminiscent of the sea.

Gold was the ultimate *pabaon*: it was a meaningful going-away present, and ensured respectful treatment in the next world. The magical metal impressed on the mind an eternal, incorruptible visage; flesh was all too soon a fragile memory, as suggested by the glass sculpture by Bobby Castillo (1996), **above**. Flanking it, headdress ornaments of cut gold sheet, which may have held feathers, leaves and flowers. **Right page:** Gold diadems. Skulls with flattened foreheads have been found in Butuan; the brow was at the forefront of their regard for beauty.

Ancestral facial decoration was done in a hurry, more for expression, rather than with high technical skill. **Above:** These eye and mouth covers were beaten out of existing jewelry. **Below:** Note the brusquely-made hole on the side of the diadem for the string meant to hold the ornament in place. **Right page:** Gold facial covers were often folded first and then breached using small, sharp shears, not unlike in the art of cut paper still done in Bulacan.

This page: Various techniques were used to depict the human life-force. On the continuous cover for eyes, **at the top,** embossing tools raised the dome at the center, ringed by dots in triangular groups. The continuous cover for eyes, **at the middle**, was meticulously cut into multiple double swirls, expressive of creative energy. The mouth cover **above left**, was scribed with a triangular teeth pattern, representing power. The one **above right**, has a crossed and scattered dot pattern, representing multiplicity. **Next page:** Gold covers kept the soul in or kept evil spirits out. These hammered leaf shapes were the ultimate in mortuary understatement.

Right: Scribed swirls and waves on headbands and facial covers from Butuan inspired by waves or the *niaga,* the snake or dragon motif, which symbolized the sea, which the ancient Filipinos mastered. The abstract pattern expresses the dynamism of ancient Philippine civilization. Those patterns and motifs survive in the southern Philippine *okir* design tradition. Artisans used a stylus—perhaps just a pointed bamboo stick—to scribe the patterns on the hamered sheet. **Above:** Fragment of a diadem

This page: Head ornament from Cebu. A similar weaving technique is still used by folk artists on young coconut fronds blessed on Palm Sunday. **Facing page:** Across the centuries, an ancestor's energy seems to reach out to us from this complete set of diadem and facial covers, which went through many steps of folding, cutting out, unfolding. Each set is unique and expressive of an individual personality.

Today, in traditional Mindanao or in megapolitan Manila, Filipinos use metal or metallic spangles and appliques on ceremonial dress. As in love with the glitter of gold were our ancestors. The late 20th century collector Dr. Arturo de Santos recreated the collars in **these pages**, using gold elements from a thousand years ago. The foliate triangular elements are similar to those on traditional Tausug blouses from Sulu and Basilan.

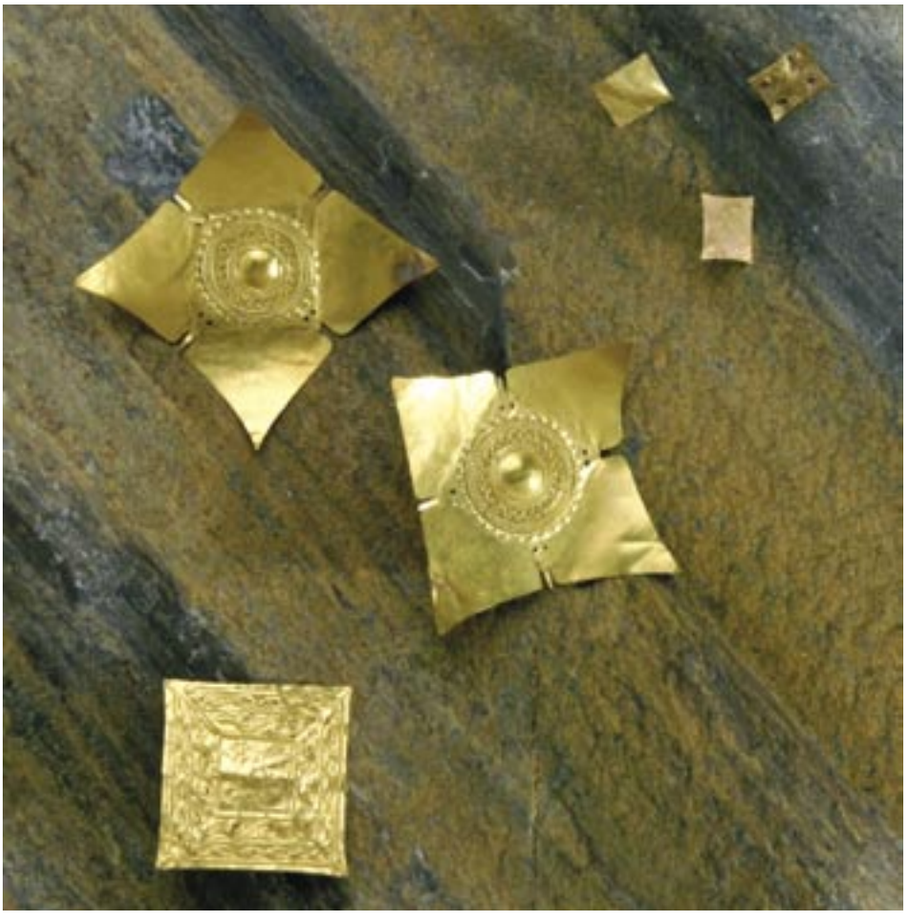
Above: Buttons or upper ear studs. *Clockwise, from upper left*, granulated, domed and punched dot discs, Central Visayas. *Lower right,* domed plugs from the Bicol Peninsula, southern Luzon. *Lower left,* rosettes with looped posts. *Center,* a bud-like tassel, and a spherical button or necklace element with a pierced tubular post. **Next page:** Two rows of conical buttons with double thread holes and upturned rims. Well into the 20th century, the Tausug, Yakan and Bajao peoples still used multiple buttons on their costume. *Lower right,* conical ear ornaments or necklace elements.

Facing page: *Clockwise from nine o'clock:* Three rings in one, perhaps representing rice and prosperity; above it are other plain rings. *Next,* two rings with gemstones. The one above has a garnet carved with a scorpion, meant to guard against evil; and below it, a cabochon sapphire from Sri Lanka. Beside these are two rings with pellet tops. At *three o'clock* are embossed foliate rings. (all of the preceding about 10th-13th century). At *six o'clock* are two infant's rings meant to be inlaid with square stones. At the *center* is a ring with granulation surrounding a symbolic mountain (14th-16th century). **Above:** An eight-sided ring, probably a transition piece, contrasts with an earlier band ring with embossing, and a pair of small chip-carved solid gold earrings.

Facing Page: Gold by itself deflects evil but pour-cast and forged gold rings were also engraved with amulet ciphers. The topmost is meant to ward off the Evil Eye. The ring at two o'clock is a representation of Sri, goddess of rice and fertility. At three o'clock is a representation of a scorpion, meant to ward off the real one as well as the negative forces it represents. At seven o'clock and five o'clock respectively are a pellet ring and a representation of a conch shell or the cornucopia, symbol of Vishnu and prosperity. **Above:** Pellets of gold, which were first studied by Philippine national hero and scholar Dr. Jose Rizal. He coined the term piloncitos, which has since been applied to similar gold pellets subsequently found in Indonesia, Thailand, etc.

Earrings formed out of sheet hammered circumferentially and radially over an anvil. The product has an angled "C" cross-section, open along the inside. Visual volume was achieved with minimum material. They may be opened by twisting the ends forward and backward. **This page:** In the small Butuan earings, *upper and lower right,* the ends were folded over and fused for added strength. Reinforcing strips were fused on the *lower left* pair. The large one in the *center* was reinforced by more decorative strips of twisted and plain gold wire. **Right page:** The *topmost* earings have granulation and wire appliques on the terminals. The *lower right* pair, from Mindoro, is among the biggest of this type ever documented. Some earrings may have had, originally a filling of wax or lacquer-like material.

Facing page: *Patan-aw* or 'look-at-me' earrings, usually found in the northern Mindanao-Leyte-Cebu-Bohol area. Fused onto the lower part of hollow hoops were zigzagging wire or pierced sheet flanges, from which dangled multiple round, rhomboidal and foliate spangles, connected by long wire or flattened sheet links. The smaller earrings must have been worn by the owners on other holes on their lobules, or the scapha, on the upper part of the ears. The single, large one on the *upper right* is unique. **This page:** These ornaments suggest that ancient Filipinos had some knowledge of Tantrism, or were at least in contact with people who had. Many ornaments may have been meant to enhance the *chakras,* or energy points along the body, represented by a system of solar or floral symbols. Thus, many Philippine ornaments have petaloid protrusions or are radiant discs.



Many classic gold ornaments were diagrammatic, or had compositions based on various combinations of the square, the circle, and the cross. **This page:** The large ear ornaments at the *center*, from Mindoro, resemble an abstract flower. Petals are suggested with deft snips on the sides, and concentric bosses and wire appliques heighten the effect. *Upper right*, the rectangular asymmetric piece, the next for its four punched accents, and the other with pointy angles, hold their own. The square on *lower left*, is made visually attractive by the contrast between the plain center and the frame of raised vine. **Left page:** In more ornate square ear ornaments, the central dome is ringed by smaller dots and petaloid embossing. The backs may be looped wire or pierced tube posts. The smaller ones were facings with double holes, as on the *lower left,* which were attached by thread onto wood earspools.

This page: The solar motif was recurrent in the Philippine gold tradition. The top one could be a flower, but the whorl could also represent the four cardinal directions. Numbers must have had special, secret significances, such as that of the seven points surrounding the central, eighth mount in the center. The radiant discs on the *right* and *bottom* are outright representations of the sun, or *hari* in old Philippine languages, which also meant 'king'. **Right page:** Very thin sheet discs scribed with patterns typical of Metal Age cultures in Southeast Asia and southern China. These were placed over spools of wood and inserted into extended ear lobes. Upper class Leyteños explained to Pigafetta, the Italian chronicler who accompanied Magellan, that distended ear lobes were a sign of wealth: only men of wealth could afford to have large or heavy ear ornaments. The fascinated Europeans were told of gentlemen who could pass their fists through the holes on their lobes.

This page: The *chakras,* or energy points along the body, could be tapped into or energized with the use of gems, such as garnets, rock crystal and mica, pyrite, agates and glass which were set into gold. Particular gems had specific powers. *Chakra* forms were also used in paired ear ornaments as in the **facing page.** Opposed flattened wires were used to clip them around the helix and into piercings on the scapha of the ear. They may also have been affixed onto tresses or onto fabric.

Above: Front and back view of an ear reel, or ring of sheet gold hammered into a "U"-section rim. This type, found in sites in Cuyo and Mindoro islands, is Indian in derivation. Examples are depicted in paintings in the Ajanta shrine. **Facing page:** The so-called *uod* or caterpillar shaped ear ornaments, usually found in Samar-Leyte. They are slit at the back, as seen in *lower left,* so that in effect they wrap around the extended lobe. This ear ornament can be seen on female figures carved on stone reliefs in Indian temples of the same period. The form is not seen in other parts of Southeast Asia, suggesting that there was a direct and intimate connection between Indian and Samarnon artisans.

Left page: Assorted ear ornaments showing various influences. The two single granulated cuffs (with stones missing) on the *upper left,* probably Butuanon, are Graeco-Indian in influence, a variation of *vajra* ornaments, 10th-13th century. The *vajra* alluded to the Hindu god, Vishnu, and the phallus, or male principle. The one on the *upper right* is a single earring with a drop of three graduated globules on a stem. *Below* it is a pair of graduated double-spiral wire drop earrings, said to have come from Northern Luzon. The motif is typical of bronze phase cultures, and still seen with the Bataks of northern Sumatra, and the Kalingas of northern Luzon. *Beside* it is a pair of continuous double swirl pendants found only in Samar and in Java, associated with material dateable from 200 BC-1000 AD. At the *bottom* is a pair of ear hoops made of twisted wire wound on plain wire, ca. 14th -16th century. **Below:** This single ear ornament consists of a wire hoop onto which granulation and wire work was soldered. H. Otley Beyer identified the type as prehispanic. This type, however, usually found in Abra and called *aritos* (from the Sp. *arretes*) is only 17th or 18th century. The type has been excavated with porcelain material, suggesting that Filipinos may have continued to bury their dead with gold ornaments well into the Spanish colonial period.

Following spread: In 1982, the Bangko Sentral acquired some pieces from Dr. Arturo de Santos, who had a remarkable collection. From the early 1960s, he not only collected beads, but also assembled them to be displayed and to be worn. He based his designs partly on ancient pieces in museums and collections abroad. **Left page**, a full necklace of long Mindoro "jade" or grean steatite tubes, ca. 500 BC-500 AD, with gold elements, ca. 1st millennium AD. **Right page**, *a* necklace of wound blue and red spherical beads, with hand-faceted early Murano chevron beads, with gold filigree dividers, mostly ca. 1400-1600 AD, from Western Visayas.

Left page: A half-pectoral, or necklace which was wide in front and narrow at the back, assembled by Dr. de Santos. Here, he used excavated beads, as well as heirlooms such as faux banded onyx trade beads from the Cordilleras in the island of Luzon. **Above:** A model wears one of de Santos' most attractive recreations, where he used rhomboidal tabular cut carnelian beads and small dark cobalt blue and gold beads strung in a net, similar to traditional chokers of the Gaddang people, northern Luzon.

This spread: A collar of opaque yellow-green, contrasted with small black Indo-Pacific beads (1st millennium AD), found in Batangas, Mindoro or Samar. The necklace is made more attractive by the granulated gold beads at the center and triangular divider gold beads on the side.

Above: A collar of black beads sets off the gold filigree linked chain which Dr. de Santos used as a unifying element. **Left page:** A collar of opaque yellow glass beads and rare early biconical gold beads.

Above: Collar of carnelian, small green beads, and segmented gold beads. **Right page:** A long necklace with a double-spiral gold pendant, probably from Samar, 1st millennium AD, hanging from a necklace of *pang-ao* beads, which contain a thin gold foil under a layer of glass. The beads are of two types. First, the prehispanic, Middle Eastern type which are barrel-shaped and hand-blown. Second, the colonial, Dutch type with the larger tubular, cut beads.

This page: Necklaces of faceted and spherical carnelian and glass beads from the Indian Ocean Trade, particularly from Cambay. Some may date back to the 1st millennium before Christ.

This page: Necklaces of 'Roman' type glass beads. These semi-transparent white beads on the last two strands are made of rock crystal. The spotted blue beads on the *extreme right* are 'eye' beads, believed to guard against the Evil Eye or *usog*.

Above: Gold bracelets were worn with bracelets of other materials. Glass ones like these were imported from Indonesia, India and beyond, and may have been as valued as gold bracelets. They have been found as far as Palau. **Facing Page:** Distinctive collared glass beads found only in Butuan, ca 10th-13th century. **Following spread:** Three girdles assembled by Dr. de Santos. The *upper* one consists mainly of blue glass beads (ca. 18th -19th century), with six granulated tubular beads (ca. 10th -13th century). The *center* one uses ovate brown "onyx" glass beads from the Cordilleras (ca. 19th century) to offset segmented tubular gold beads from Samar (ca. 14th -16th century). The *bottom* piece uses orange Indo-Pacific glass beads with colonial trade beads.

Left page: Loose beads, showing the different sizes of necklace elements, ranging from less than 1.0 mm to around 15.0 mm in diameter, and from less than 1.0 mm to more than 20 mm in length. A variety of techniques were used, including doming, granulation, filigree and scribing. Strands of beads, **above,** shown just as they were acquired. Gold artifacts were discovered by farmers serendipitously while hunters, systematically searched for gold beads. Before Dr. Arturo de Santos, collectors could make neither heads nor tails of the elements, and did not purchase the finds. Many of the loose pieces ended up in the melting pot.

Above: An 'eye' and a 'hook', half of different hook-and-eye sets, used as clasps for multiple-strand beads. The first piece, with eight holes has a a millipede-like granulated radiant pattern. The other one has six holes, with granulation in triangular groups. The granulate patterns are similar to those in *takmon* blouses worn by the people of southern Mindanao, using shell spangles and glass beads. **Facing page:** Necklace of assorted gold beads, strung haphazardly at the site, with pendant elements in the shape of abalone shells, found on the Pacific side of Samar. The central 'pendant' is the 'eye' half of a hook-and-eye set.

Above: *Suso* pendant beads inspired by long spiral shells. They are made of tapering granulation so fine that the tinier spheres are smaller in diameter than rice grains. They average 25 to 27 granules per bead. **Facing page:** The beads range from very fine, *on top,* to thicker ones, as in the two *lower* matching necklaces. The beads on the three-strand necklace, **following spread,** are very similar to the *suso* at first glance. But the last few granules in each pendant bead were flattened, producing a shimmering effect, much like the tails of the dragonfly. Thus, collectors dubbed it the *tutubi* necklace.

The collar was meant to be worn high on the neck, as on the model on the **right page** and **this page.** The strands overlap each other, much like the multiple layers, made with glass beads and horsehair chains, still worn by the people of southern Mindanao peoples. Authentic *suso* and *tutubi* necklaces are extremely rare.

Above: Assorted funnel-like necklace terminals. The 20-piece set at the *center* might have been used for a tutubi collar, from the Surigao Treasure. The pairs on the *upper left* and the *lower right* were used for bead necklaces, as were the bigger ones. **Above:** *Center,* large funnel-like necklace terminals, in comparison with a similarly-shaped one, *upper right,* and more flaring ones with very fine granulation in a rhomboidal maze pattern in the *lower left.*

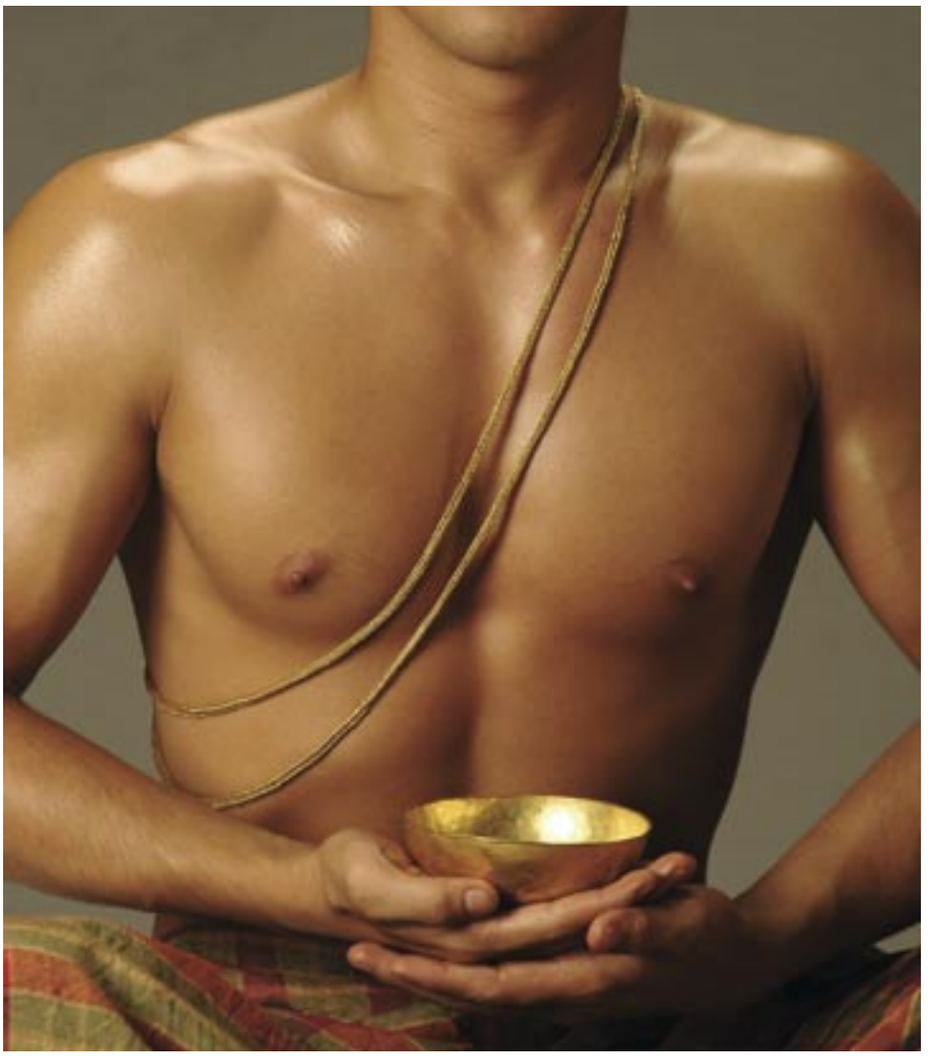
The biggest pair in the Bangko Sentral collection are the ones **above**, said to have been found in Pangasinan. They are unlike others, with their 'double-gourd' annexes at the narrow end, and the flaring ends in strips wrapped around a reinforcing wire ring, which may have been a later repair. Before the discovery of the Surigao Treasure in 1981, they were thought to be ear ornaments, or even cigarette holders, thus their street name, '*pipas*.' The detail is phenomenal. Each funnel has three main bordered sections. The middle one has a rhomboidal pattern. **Left page:** The upper and lower sections have human figures, with long hair flung upwards, snapping long banners held in their hands as they dance around the archetypal Tree-of-life.

Above: Among the necklace forms unique to the Philippines is the *kamagi:* four to five inches of interlocking beads strung to lie on the nape. From simple funnel finials emerge a long strand of glass beads and metal bells that fall over the chest. The ancient necklace is composed of many interlocking dentate or 'gear' beads made of granules fused in concentric rings, and then smoothened on the outside. The rondelles interact with the suppleness of snake vertebrae. Today, the people of Southern Mindanao still wear necklaces they call *kamagi*. As we can see in the **facing page,** there are varying thicknesses of the *kamagi,* depending on the granular circumference, ranging from the small ones, using 5, to the bigger ones, using up to 20 granules.

This page: This handsome *kamagi* necklace was part of the Surigao Treasure, which also yielded the astounding multiple strand hoard in the **following spread.** So many strands, apparently made by different artisans over several generations, could only have been part of the treasury of a court or group of royals. There are two short lengths of large gear beads in the collection, shown on the **left page**. Large beads found in the western Visayas, *topmost,* were usually made from reddish, lower karat gold, and associated with 14th-16th century material. However, a large early one, with the granulation on the outside left as is, was found as part of the Surigao Treasure. This fragment, *center,* was part of a long necklace that had been chopped up by scavengers of the Treasure. The larger portion was sold to a private collector. When this remnant surfaced in Cebu much later, the dealer there decided to sell it as is, just adding the granulated stoppers at the end. *Left bottom,* detail of the necklace **above**, showing the hook and eye, wedded link chain, granulate tubular elements, graduated rondelles and flaring terminal beads.

Right page: A group of differently sized loop-in-loop chain necklaces, called *bejuquillos* or 'spun gold" necklaces by the early Spanish chroniclers. They are also called *inahas* or snake-like chains by goldsmiths today, and by dealers from the Visayas, *kerel* (perhaps derived from the French *carre,* four-cornered loop-in-loop or foxtail chains). The *bejuquillos* are usually found in eastern Central Philippines. **Above,** a chain made out of "wedded" links, or two rings positioned perpendicularly at their openings, and fused together. Probably from Samar, this type is usually associated with Ming porcelain pieces (ca. 14th-16th century).

Facing page: A very rare necklace with twin loop-in-loop chains. The terminals are the typical tubular sheet, with three rows of twisted and plain wire appliques. The loop-in-loop chains were pulled through the tube by thick rings, which were partly wrapped and kept in place by the upper ends of the terminals. Wedded links then lengthen the necklace at the back, as does an extended hook-and-eye set. **Above:** The usual bejuquillo.



Right page: Two long loop-in-loop chains. The *upper* one is a simple four-cornered or *carre* necklace; the one at *extreme left* is a round cross-section, multiple loop-in-loop chain with granulated finials (with the hook missing). Such long chains may have been worn diagonally, across the torso, as the model wears it **above.** Worn that way, they might have had a Hindu-Buddhistic significance. The Sacred Thread, worn over the left and under the right shoulder, signified the wearer's high caste. **Above:** The handbeaten gold bowl, which fits snugly on the palm of a hand, must have had a ritual function.

Above: A penannular sample, with decorated terminals, which could be twisted open, resting on a gapped version with an angled "C" cross-section. **Facing page:** A set of eleven "D" cross-section hollow bangles, perhaps for a child-bride. The upper one, not part of the set, shows more sign of wear. Sometime in the distant past a repairman attempted to reinforce it with a strip of base metal.

Above: A bracelet of granulated tubular beads strung on wire (Samar-Leyte type, 14th-16th century) and one made of round links made of wire wound around wire (Butuan type, 10th-13th century). **Facing page:** A matching pair of armlets domed on a metal form (Samar-Leyte type, 13th-15th century), and a wide armlet with the center ridge flanked by smaller ones (Butuan type, 10th-13th century) done freehand. **Following spread:** *Left,* a flaring set of five and *right,* four forearm wraps. They are made of strips of sheet edged with twisted wire, with tube-and-pin locks. These were originally believed to have come from Mindoro. Later, a similar, although single, strip surfaced in Abra, where women in traditional costume wrap their forearms with multiple straps of beadwork. The palmette and rosette meander is a Western motif, and some 17th century cross pendants from Ilocos have a dot-on-grid pattern. These bracelets may be transition pieces.


10A

Right page: Four narrow bangles made of domed sheet with the sides folded over the rim. The convex surfaces were worked from the inside and the outside to produce raised patterns. On **this page** are close-ups of three complex patterns. On the left is a series of facing S shapes which frame sharp protrusions; they are commonly called *langka* because their surface is reminiscent of the jackfruit *(Artocarpus heterophyllus)*. Less common is the stacked hearts pattern of the one in the *middle*. Both are probably from Butuan, and usually found with artifacts dateable from the 10th-13th century. The bangle on the *right* has an atypical twin wave or lance-shape pattern, and was made perhaps a little later.

Bracelets from the Surigao Treasure. **This page:** *Left*, two-prong collared gemstone settings form a ridge flanked by triangular groupings of granulation. *Right,* small beaded collar settings line the channel formed by sidings studded with settings alternating with triangular granulation. The pairing of garnet and turquoise was originally Scythian, adopted by Byzantine and then West Asian artisans. Philippine artisans somehow developed a taste for the distinctive combination, although they had access only to natural reserves of garnet, and resorted to glass for turquoise. **Facing page:** *Lower right,* the same bracelets. *Center,* a pair of open bangles of thick twisted wire. *Upper right,* a solid gold bangle chiselled in the form of a radiant disc.

Following spread: A set of high-karat bracelets found by a farmer in Baggao, Cagayan. *Right page*, elliptical cross-section bangle with rib-like hammerwork on the outside, with a herringbone pattern engraved on the flanks. Batangas earthenware are similarly decorated. *Left page*, cuffs with handforged fluting with reverse scallop appliques emphasizing the rims. Heirloom, lesser-karat examples of the wide cuffs have come from Tabuk and Tanudan, Kalinga-Apayao province.

Gold trifles for the royals. **This page:** *Top right,* from the Surigao Treasure, a collar, the top edged with dentate prongs meant to be bent over another material. It was suggested that this was a finial for a cane or scepter; this may have been a lid for a flask. *Top left,* the curved tip for a boar tusk or crocodile tooth amulet. *Lower left,* appliques in the form of a crocodile or lizard. The amphibian menace represented cunning and power, while its gentle relative represented domesticity and regeneration. *Lower right,* also from the Surigao Treasure, the handle of a *kalikot*, a usually wood-handled iron implement to mix lime with other betel chew fixings. **Facing page:** A dagger, probably Persian, with a handle made of glass decorated with wavy lines, found in Mindoro. Wavy lines of granulation and wires also decorate appliques, one of them on a scabbard-form sheet from the Surigao Treasure.

Above: A dagger handle from the Surigao Treasure. The swirling lines and the asymmetric form suggest raging flames surrounding a bird's head with a disc at the tip of its long beak. In Indonesia, the *garuda* or sun-bird was the god Vishnu's vehicle. In old Philippine languages, the sun was also called *hari*, or king. The symbolism here, then, is that the Butuan kings were vehicles of the divine. **Facing page:** A recreation of how ancient regalia may have been worn by royalty.

Above: A dagger handle similar to the preceding one. They were constructed out of walled fretted sheet and decorated with appliques. In this example, the scavengers hacked the piece to divide it; scrap gold dealers then scraped out the sand filling. The hilt probably ended up in the melting pot. **Facing page:** A T-shape dagger handle from Cebu, with a neck and three rows of wirework for a better grip. Detail shows the repoussage on the topside.

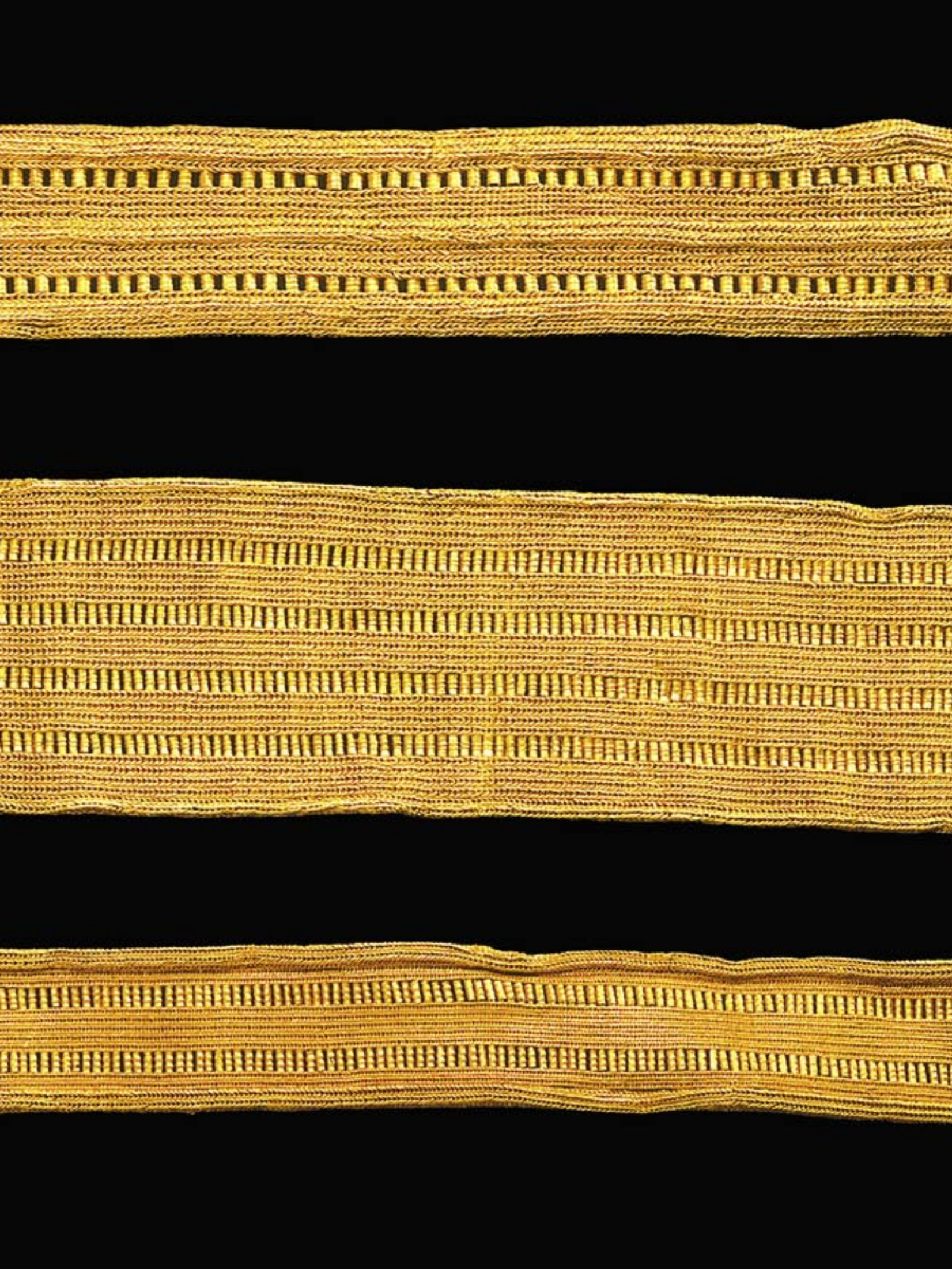
Spread: From the Surigao Treasure, sets of gold leglets for a *bagani,* or warrior. The Bogobos of southern Mindanao are recorded to have used such leglets or *tikus,* made of a jungle vine, which were wrapped below the knee and above the calves in the belief that it improves agility, on top of the magical significance it brings.

Above: Weights and finials for headscarves, or *putong*. The *top* is made of heavy, chip-carved and turned wire tiers, from Butuan. The *lower right* pair, made of angled sheet sections with wire finishing, are from Samar-Leyte. *Left*, wire spirals. **Facing page:** A *bagani* wore red, and a lot of gold. Large spools faced with the precious metal would have been plugged into extended ear lobes.

This page: Detail of a pair of very heavy waistcord finials shaped like Hindu-Buddhistic architecture. In the late 16th-century manuscript known as the Boxer Codex, illustrations show Filipino noblemen wearing such ornaments. Five chip-carved tiers with layered radiant spikes are relieved by ventanilles of flattened wire slats on struts. The bottom is formed with declining concentric wire rings, and the whole is surmounted by an edged collar. The ornament is slit along its whole length to permit the intromission of textile.

This spread: Gold finials for fabric sashes. Above, a folded sheet with repousse-work on the front, with nine collar settings meant to be set with gems. The efflorescent center is surrounded by water fowl and sea-creatures, perhaps symbolizing Butuan. **Facing page**, a pair of finials, meant to be joined by a cord slipped through the folds placed side by side. Each has an efflorescent center from which radiates five entities of graduating energy. From this circle or *mandala*, power emanates into the cardinal directions. Was this a diagram of the Butuan polity?

Unique to the Surigao Treasure are gold sashes. The Bangko Sentral has seven of these magnificent masterpieces. Till today, the symbol of power in traditional societies in Mindanao is the *kandit,* or sashes of great value, usually of silk, sometimes with gold buckles, worn by men. **This page:** How a sash would have looked like when worn. We do not know if the ancient sashes were worn by men or by women. **Facing page:** In this sash, boxed finials are decorated with collar set cobalt blue glass surrounded by triangular groupings of granulation. The rings, when placed side to side, were locked together with a pin. Found only in the Philippines, the complex loop-in-loop technique used on the Surigao sashes is at par with the best Graeco-Roman work. **Following spreads:** The whole lengths of three sashes with 'plain' weaving, followed by three with even more complex weaving, using techniques which may be unique to the Philippine tradition. The latter ones utilize turned tubes which wrap the warp strands, and ridged and rounded 'selvage' weave. The finials are decorated with granulate rosettes and triangular groupings, with crimped sheet and wire borders.



ACKNOWLEDGEMENTS

The Committee on BSP Artworks and Paintings wishes to thank the following persons and institutions for their valuable contribution in making this documentation of the Bangko Sentral ng Pilipinas Gold Collection a reality:

Past Governors of the Central Bank of the Philippines (particularly Dr. Jaime C. Laya) and of the Bangko Sentral ng Pilipinas, for their steadfast commitment to preserve our ancestors' gold legacy through the BSP Gold Collection;

Ramon N. Villegas, for his continuing passion to decipher our nation's history through our cultural treasures;

Studio 5 Designs, particularly Joe & Marily Orosa and BG & Jhoey Hernandez, for the exceptional book design and the unconditional commitment to provide an excellent showcase for this important legacy from a golden age;

Wig Tysmans for his inspired and inspiring photography;

Metropolitan Museum of Manila, particularly Victorino M. Manalo and Peter Natividad, for their unstinting support;

Becky Van Ommen and Lloyd Vincent V. Barredo for their faithful reenactment of how our ancestors found amazingly creative ways to use gold in their everyday life;

National Museum, particularly Corazon S. Alvina and Angel Bautista, for the Butuan photographs; and

BSP Corporate Affairs Office, particularly Fe de la Cruz, Frances Arespacochaga, Joey Reyes, Aurora Parjan, Rogelio Garcia, Dennis Catacutan, and Daisy Navarro, as well as the rest of the staff who worked tirelessly for the realization of this project.

The manuscript for this book had an extraordinarily long journey. The author would like to thank: Lydia Alfonso, Corazon Alvina, Virgilio C. Bailon, Dick Baldovino, Antero Baylosis, Leony Benedicto, Osmundo V. Esguerra, Antonio Garganera, Esperanza B. Gatbonton, David Kamansky, Jaime C. Laya, Anne Richter, Wilfredo Ronquillo, William Henry Scott, Felix Sta. Maria, Nancy Tingley, Lilia Villanueva, and M. T. Lammoglia-Virata. They helped the author more than they realized.

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