

## CHAPTER II

### ANTIQUITY OF BRONZE IN THAILAND

To comprehend present status of bronze monumental sculptures in Thailand, bronze considered as semi noble material, has been used from the pre historic time. The people subsequently were fascinated with the metal that the evidences found from the archaeological excavation and exploration shows its popularity. The popularity is still evident at present with new technology and new practice. The chapter discusses on the discovery and dissemination of bronze in different pre historic, historic ages and present scenario of modern bronze and history behind the establishment of contemporary bronze culture in Thailand.

#### 2.1 Discovery of Bronze Age

History of tradition of bronze casting and using bronze in Thailand goes back to the prehistoric period. There are various examples of bronze objects found from the archaeological excavations from different prehistoric sites of Thailand. Study on the metallurgy in pre historic Thailand discovered evidences of pre historic mining and copper smelting both from the northeastern and central regions, i.e. at Phu Loan in Nong Khai province, at Khao wong Phra Chan in LopBuri province and at Noan Pah Wai in Huey Pong Village, Khok Samrong district of Lop Buri province.<sup>1</sup> With prevalence of die casting techniques in pre historic Thailand, Thai molders during the 4000-3500 years ago were capable of lost wax casting and fully realized that metal could be strengthened by cold hammering. They also knew how to heat the metal in order to return its capacity or to reduce its brittleness by cold hammering.<sup>2</sup> Very famous examples of bronze tools and bangles, rice tempered clay crucible<sup>3</sup> and sandstone mould included<sup>4</sup> as a mortuary

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<sup>1</sup> *Guide to the Gallery of Thai History* (National Museum, Bangkok, 2002). p. 41

<sup>2</sup> *Ibid*, p. 42

<sup>3</sup> Everly, Daniel Eugene, *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia*, Master's Thesis, (Faculty of Anthropology, Office of Graduate Studies, Texas A& M University). 2004

<sup>4</sup> Hingam, Charles, *Early Cultures of Mainland Southeast Asia* (River Books, 2002). P.139

objects were unearthed from the excavation of Ban Chiang, Ban Nok Tha. These are considered to be the oldest found objects which are dated about 2,500 – 1,500 years ago. Hingham concludes that there are considerable changes to the means of smelting and castings during the course of time and by the middle of the first millennium BC major technological changes spread rapidly across Southeast Asia which spread the knowledge of working with metal and introduced new opportunities.<sup>5</sup>

To study the bronze history of Thailand it is important to understand the pre historic bronze culture of Southeast Asia in general. When Indus valley civilization was considered as the oldest pre historic site of Asia, the date of pre history of Southeast Asia goes back beyond the Indus civilization. Archaeology came rather late to Thailand than other south Asian countries like Vietnam, Lao, Cambodia etc. Discovery of Bronze Age in Thailand was announced in 1968 by Solheim. During the excavation of Non Nok Tha, he found bronze artifacts and their stone moulds in a cemetery. On the basis of radio carbon dates, he dated the bronze to the third millennium BC. He concluded that bronze was being worked in north eastern Thailand nearly one thousand years before it is now considered to have begun in Shang China and one hundred or more years earlier than it started in the Harappa culture of the Indus Valley. Solheim wrote that a socketed tool coming from Southeast Asia and the oldest socketed tool yet found anywhere.<sup>6</sup>

Prior to this the existence of a bronze age in Southeast Asia first entered the historical record when the Han Chinese expanded to the south and where they encountered so called barbarian groups who were masters in the casting of bronzes. Casting bronzes were unknown to the Chinese until then. The Sui Shu( History of the Sui), which was compiled by Wie Zheng and covers the years AD 586-617 noted that: “ the different Lao tribes make bronze drums,..... before going to war, the chief summons the warriors of the tribe

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<sup>5</sup> Ibid, p. 167

<sup>6</sup> Solheim, W.G.Li, *An Earlier agricultural revolution*, Scientific American, CCVI(4)

by beating the drum.” Another literature Man Shu dated AD 618-906 of Tang dynasty describes how the southern barbarians beat war drums when in mourning and during feasts.

According to Higham first recorded western descriptions of such drums came after the establishment of the Dutch east India Company. One of the Dutch employees, George Rumpf, who lived at Ambon in the Moluccas during the second half of the seventeenth century, heard of the discovery of a large piece of metal, said to have fallen from the sky. This was the Pejeng drum. In 1687 he described a second specimen from Serua as a huge and extraordinary bronze vessel.<sup>7</sup>

Early works in French Indo China and southern China by the French enthusiasts on the antiquities lead to a significant discovery of bronze culture in Southeast Asia. Higham states if the Bronze Age in island Southeast Asia was first recognized by the Dutch, that on the mainland ,excepting the early Chinese reports, was initially encountered by the French, who colonized much of the region in the second half of the nineteenth century. In 1876, M Roque, director of the Company of River Transport of Cochin China explored Sanrong Sen. Main focus was on a settlement mound located in the valley Chinit, one of many rivers which flows into the lower Tonle Sap or the great lake of Cambodia. His study revealed a deep stratigraphy of shells interspersed with layers of flood deposited sand. The shells represent food refuge from pre historic occupation, and ceramic, stone and shell artifacts were kept by the diggers as good luck charm. In 1879 M. Moura, representative of the French protectorate, went to investigate some site and collected some artifacts, including bronzes from villagers. The report of this was published in 1879 by M. Noulet in the first number of a new publication, the Archives du Musée d' Histoire Naturelle de Toulouse. Apart from stone axes, chisels, bangles and rings, bronzes comprised of three large bracelets, an axe, two arrow heads

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<sup>7</sup> Higham, Charles, *The Bronze Age of Southeast Asia* (Cambridge University Press, UK, 1996). p.17

and a fish hook. The arrow heads were found to have 4.8% tin, fish hook 4% tin and a bracelet had a tin content of 12%.<sup>8</sup>

Another systematic prehistoric excavation was conducted by Ludovic Jammes in Samrong Sen. He is said to have employed the first systematic approach to pre history in Cambodia, both by seeking a range of sites, and excavating with due attention to stratigraphy. Jammes excavation in Samrong Sen to the depth of 4-10m revealed three distinct layers. The lowest contained only stone implements and coarse pottery. The second included some bronze items with some stone artifacts, and a thinner variety of pottery, while the third a pure Bronze Age with some polished stone artifacts pottery bearing rich ornamentation. Many of the artifacts were associated with the mortuary objects.

Following Jammes there were several other personnel performed the excavation and exploration around Cambodia and Lao that Lefèvre\_ Pontalis(1894). When surveying the situation near the turn of century, observed a range of similarities between bronze artifacts found in the south, mainly in Cambodia and the Luang Pranang area of Laos. This suggested that the pre historic sequence involved a Stone and a Bronze Age. Likewise, in another area of expansion, Balfour(1901) reported finding a Bronze Age spear head and a socketed axe in the Shan states of Burma. Sand stone moulds discovered near Mlu Prei(O Pie Can, 0 Navi and 0 Yak), by Lévy (1943) by Mansuy at Samrong Sen shed light on the bronze casting tradition.<sup>9</sup>

In 1912, an assemblage of 165 large bronze drums was published by Heger. He subdivided them on the basis of form into four types. Most of the drums came from southern China and the valley of the Red River, and other were from further afield in Southeast Asia. By 1918, the number of drums increased to 188. Henri Parmentier who was working with the Ecole Francaise in Hanoi, undertook a survey of them particularly

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<sup>8</sup> Ibid, p. 20

<sup>9</sup> Ibid, pp. 17- 29

on the form and decoration. The pattern on the drums shed light to the then culture and way of life of the people. One of the drum was dated AD 30 which commemorated the sixth year of the reign of the Han emperor Wudi.

In 1929 Victor Goloubew conducted excavation at the settlement and cemetery of Dong Son. The result of Dong Son excavation revealed the Dong Son bronze workers were also skilled in the difficult technique of lost wax casting. The figure to be cast was first rendered in wax and surrounded by clay. Wax was then removed and placed by molten bronze. Goloubew concluded that Dong Son bronze industry was influenced by China that the Bronze Age did not start there until the mid first century AD, and then it was inspired by China.<sup>10</sup>

Another excavation on Dong Son was conducted in 1935 by Janse whose report published in 1958. The detail report of excavation done in tomb no. 1 showed that the tomb was oriented on a north- south axis, although the bones have not survived because of soil conditions, the body was accompanied by a bronze drum, vase and plate, a few spearheads and arrowheads, three miniature drums, and slit stone rings and nine pottery vessels. Janse concluded that this was probably the burial of a chief. The site also showed the Han Chinese influence.

During the year 1935 Madeleine Colani was excavating in the uplands of Laos. She had previously concentrated her research on the rock shelters in the Karst hills south of the Red River, but later she was attracted to Laos by the huge and enigmatic stone jars. Her excavation revealed prehistoric crematory in association with a number of cemeteries. The stone jars contained cremated human remains associated with bronze and iron grave goods like bronze bells and spearheads. Likewise presence of moulds for casting bronzes added to the growing body of evidence for wide spread metal working. This site was associated with the site of Dong Son.<sup>11</sup>

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<sup>10</sup> Ibid, p. 27

<sup>11</sup> Ibid, p. 31



In 1943, Levy investigated three sites in the head waters of Sun and Chinit river near Samrong Sen. He found sandstone moulds to cast sickle and axe at Pie Can, in addition to crucible fragments. At O Yak, bronze bracelet and at O Nari, he found evidence of bronze working. Hingham states that,

*“By the time that the Second World War slowed archaeological enquiries, therefore, evidence for bronze working in Southeast Asia had been found in the valley of the Red River, along the coast of Vietnam, in the Mekong River valley from its mouth to Luang Prabang in Laos, in the lowlands surrounding the Tonle Sap in central Cambodia and even at an altitude of a thousand metres in the Laotian uplands. Indeed , prehistoric bronzes had been found in virtually all the areas explored by the French. Only Thailand, never colonised, remained little known, at least in terms of prehistoric bronze working.”*

In archaeological research one positive aspect of the Second World War in Southeast Asia was the importance given to aerial photography. During the mission of Northeast Thailand, Milliams Hunt(1950) had identified many large, moated prehistoric settlements now known as Bronze Age site. Higham states that,<sup>12</sup>

*“Post war research in Southeast Asia,.....has increased our information beyond recognition through more intensive fieldwork..... Thailand, however, a late starter, is now the best documented, due to the absence of warfare, training programmes for Thai archaeologists in America, Europe and Australia, the vigour of the Thai Fine Arts Department and the permission given ti foreign archaeologists to excavate. Two regions of Thailand have received particularly close attention: the northeast, or Khorat Plateau, and the Chao Phraya Valley.”*

The decade of the sixties was blossoming period for research in Southeast Asia. In Southern Vietnam, Saurin(1963) reports on the site of Hong Gon, had revealed a prehistoric site from where four sand stone moulds were found, two for casting the socketed axe heads which had been so well known since the 1870s, and two for casting round- headed pins. A radio carbon date on the basis of organic material from a pottery vessel at this same site was 3044- 3045 BC.

<sup>12</sup> Ibid, p. 32

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เลขทะเบียน.....E 47384
เลขเรียกหนังสือ.....

In 1960 a remarkable report from the north east Thailand, Ban Chiang was revealed.<sup>13</sup> The site was reported from the findings of surface of the earth during heavy rain mostly pot sherds of red painted pottery. In 1967, the Thai archaeologist Vithya Inlakosai excavated there, and encountered human burials associated with bronze and iron bracelets, as well as some of the very attractive red-on -buff painted pottery. Another excavation of 1970s conducted by Nikom Suthisagsa found deposits about 4m. deep, a skeleton at the very base wearing eight bronze bracelets. The Thermoluminescence (TL) dates on the pre historic pottery found from the same site came as fifth millennium BC.

In 1974-5, Fine Art Department of Thailand combined with the museum of the University of Pennsylvania excavated the same area. According to the archaeologists Gorman and Charoenwongse(1976) the bronze they had uncovered might, on the basis of radiocarbon dates have been as early as about 3600 BC. Higham states that these would have placed them among the earliest in the world and certainly considerably earlier than any bronze items found in the Huanghe Valley, home of the Chinese bronze tradition.<sup>14</sup>

In 1966 and 1968 in Non Nok Tha the same part of Northeast Thailand was the focus of a major program of field work under the direction of W.G. Solheim II, of the University of Hawaii. The excavation revealed a large number of burial, bronze artifacts, in the main socketed axes and bracelets. There were also bronze moulds made of sandstones, of identical form to those recovered from Hang Gon. The radiocarbon determination from Non Nok Tha revealed that the bronze tradition at this site was far earlier and less complex than that identified at Dong Son and related sites in Vietnam.<sup>15</sup>

In mainland Thailand the Chao Phraya Valley has also been a focus for fieldwork from the early sixties. In 1961 a Thai- Danish expedition under the direction of Per Sorensen undertook a series of excavation in Kanchanaburi province on the western

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<sup>13</sup> Ibid, p. 34

<sup>14</sup> Ibid, p. 34

<sup>15</sup> Ibid, p. 36

margins of the alluvial lowland. Some fragments of bronze bracelet were found from non mortuary findings. With radiocarbon dates the place was dated about 200BC. Located upstream of the Bang site, cave of Ongbah was investigated which was a burial site. A wooden coffin found contained a rich contains of grave goods, including six bronze drums of Dong Son affinities.<sup>16</sup>

Henceforth, the early period of the so called era of research into Southeast Asia provided evidence for the widespread presence of bronze casting. According to Higham there was an early phase when few bronzes of limited forms were found in some of the graves, and a later one when bronzes became very much more elaborate and varied. It seems that bronze was considered very important and useful metal that played a vital role to the inhabitants of the pre historic people. It can be presumed from the mortuary bronze objects that they were supposed to be possessed even after life realm. An important issue that can be noted from above study is that the Southeas Asian bronze can be dated as earliest in the world. The initial findings from this area can be dated second millennium BC would place the earliest bronzes comfortably later than those in the Huanghe Village in China. Another fundamental issue for those concerned with origins, lay in the finding, that, all the early phase artifacts comprised an alloy including copper and tin. It is clear that the search for such illusive objects of copper was necessary. This issue would be most profitable considered in the same context as tracking down the source of copper ore, and seeking the early evidence for mining and smelting. Some archaeologists tracked down the source of copper and tin mines and its smelting sites around Southeast Asia.

## 2.2 Basic Cultural Framework

The archaeological investigation helped to determine the basic cultural framework of pre history and early history of Southeast Asia.<sup>17</sup> It can be divided into five interlinked phases. The earliest phase is the two distinct type of adaptation by the hunter and

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<sup>16</sup> Ibid, p. 36

<sup>17</sup> Higham, Charles, *Early Cultures of Mainland Southeast Asia* (River Books, Bangkok, 2002).

gatherers. One group is found from the interior uplands that seem to move in small groups. Their cultural remains are found from the fore front of caves. They are generally named as Hoabinhians, which is named after the Vietnamese province from where it was discovered. The second group of habitat was found from the coastline. Excavation on such places uncovered prehistoric settlements, with remains of large, permanent and rich hunter gatherer communities.

Within the period of 8000- 6000 BC in the middle reaches of the Yangzi Valley, the transition of rice cultivation took place. Agriculture leads to establishment of permanent settlement by 5000 BC in the lower Yangzi Valley and by third millennium BC an intrusive occupation of Southern China was identified.

By the way of river route, rice cultivators reached the Red River Valley, the Khorat Plateau and central Thailand during the period 2500- 2000 BC. According to the evidences, early Austroasiatic language was spoken by the new settlers and it was defused to Burma and Eastern India at about the same time. This period is described as Neolithic period of Southeast Asia. This period was of short duration. Higham states:<sup>18</sup>

*“A few late sites in Viet Nam and Lingnan include exotic imported jades and bronzes which originated in the Shang Civilization of China. Such contact might well have brought the knowledge of bronze casting, for from about 1500 BC, a distinctive Southeast Asian Bronze Age can be recognized. Sites with similar casting technology are found from Hong Kong and the adjacent mainland west to Viet Nam, Cambodia, Thailand and Burma. Southeast Asia some high-quality deposits of copper ore, and rich sources of tin. A series of excavations in the copper mines and the villages they serviced now make it possible to assess the social as well as the technological correlates of metallurgy.”*

Bronze Age lasted around millennium before we encounter to the first evidence for iron forging. According to Higham origin of iron smelting are not known, but the dating of the earliest iron, in the mid first millennium BC is similar to that for the Warring States Period of China. Iron Age of different places might have co related. A

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<sup>18</sup> Ibid, p. 27

local innovation in central Thailand, or contact with India, might also have occurred, for the Iron Age of Southeast Asia differed regionally. However Iron Age societies reveal indigenous and increasingly complex structures, a rapid growth of population, and participation in a growing international trade network.<sup>19</sup> By AD 100-200, it is possible to identify the rise of an early state in the Mekong Delta and to the Valleys of Mekong and Chao Phraya rivers, and the coastal plains of Viet Nam. States were formed upon local traditions emerged under the leaders who adopted aspects of Hinduism and Buddhism, and Sanskrit names. The Indianized characteristics of states are states of Angkor, Dvaravati in central Thailand and Champa in Vietnam.

### **2.3 Diffusion of copper smelting and casting in Southeast Asia**

In interpreting the archaeological record in terms of cultural change, it is important to determine in which direction each change spread and, as nearly as possible, where it originated within the area being studied. By the process of diffusion, metallurgy spread from Huanghe River Valley of Northern China into the Khorat Plateau of Northern Thailand within a span of the second millennium BC. In Thailand's case substantial archaeological data exists in support of diffusion as the primary change agent.<sup>20</sup>

To investigate the origins of bronze working tradition, the stance lead us to the broad expanse of North China to Eurasian steppes. The earliest bronze casting in China came from the remote western provinces. Sites of the Majiayao and Machang cultures in Gansu, Qinghai and Xinjiang which include cast and forged copper knives and other tools, dated between 2740-1900 BC. China's earliest known metallurgically produced

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<sup>19</sup> Ibid, p. 27

<sup>20</sup> Rowe 1962:41, Cited Daniel Eugene Everly, *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia*, (Texas A& M University, 2004). p. 34

artifact is a 6- 10 percent tin-bronze knife from Linjia located in the Gansu region of the upper Huanghe River Valley. The knife was found from a storage pit. Fragments of metallic residue found in other pits at the site suggest the possibility of local casting, but the lack of additional evidence for metallurgical activity indicate otherwise. “Only one further metal item has been recovered from the Machang phase, a fragment of a second knife from Jiangjiaking. This has been reported as a copper- tin alloy.”<sup>21</sup>

In China Afanasievo culture of the Irtush, Ob and Yenesei valleys is an intrusive element east of the Urals, and it represent an eastward movement of people belonging to the Yamnaya culture. Yamnaya culture concentrates west of the Urals and dates in its earliest phase to about 3500 BC. It is significant not only for the presence of copper based metallurgy, but also for the presence of domestic horses and wheel carts.<sup>22</sup> Most of the cemeteries excavated from the Afanasievo sites contained pottery vessels along with copper beads, and gold and silver ornaments, as well as the remains of horses, sheep and cattle. The greatest density of this site lies in the copper rich Minurinsk Basin and the middle reaches of the Yenesei Valley. It is also claimed that the form of the crania of the people matches that found to the west and was of Europoid affiliations. The metal industries became more sophisticated in the succeeding Okunevo sites. By now copper was being alloyed, and cast into knives, awls, fish hooks and bangles.

It is presumed that because of horse transport the technology of copper based industries expanded further east. A site similar to Afanasievo culture was found from Tarim Basn. During the early period of this site, Radio-carbon dated between 2000-1500 BC from the organic materials, grave goods included copper, bone and jade ornaments, together with wheat grains were uncovered. Investigations on clothing included to the

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<sup>21</sup> Higham , Charles ,*The Bronze Age of Southeast Asia* (Cambridge University Press, UK, 1996). pp. 44-45

<sup>22</sup> Higham, Charles, *Early Cultures of Mainland Southeast Asia* (River Books, Bangkok, 2002). P. 114

inheritance of some textile traditions from a common source which was found from far to the west at Hallstatt in Austria. Higham states that,<sup>23</sup>

*“These sites cast serious doubt on an indigenous origin for the Chinese bronze tradition.....the western parallels in copper and bronze working, and the strategic location of the Qijia sites adds weight to the possibility that horse transport across the steppes in the third millennium BC brought not only speakers of an indo- European language, but also the technological expertise developed in the west.”*

The established bronze industry helped to produce finest and as heavy as 800 Kg bronze object. The Shang Dynasty influenced to a wide range of typical jade halberds and yazhang blades, as well as the occasional bronze, found their way into northern Vietnam and Lingnan. In Hong Kong and Bac Bo area the first local bronze castings in bivalve moulds was found. Schofield(1975) found six moulds for casting socketed axes at Shek Pik on Lantau Island, Hong Kong in 1937.<sup>24</sup> Dated between 1300 and 1000 BC, axe moulds belonging to the Northeast or central Thailand, were found at Kwo Lo Won (Meaxham 1993). Likewise axe mould and bronzes were found from Chau Hing Wah and Tung Wan Tsai, dated 1700-800 BC.

Higham gives two alternative interpretations from extensive body of data. It shows that either the origins of the Southeast Asian Bronze Age as being part of a continuum, which began in the Near East and progressively expanded across the steppes to the Gansu Corridor and into China. From there, knowledge of copper smelting and alloying would have spread south along well established routes of exchange to Lingnan and Southeast Asia, and New Guinea. Higham’s second alternative involved the local discovery of the properties of copper and tin ore, and their enhancement through alloying, coincidentally at the very time when the Neolithic Societies were being exposed to imports and, presumably, ideas, which originated in one of the most sophisticated of early sites. It seems that whether of exotic or local origin, knowledge of how to smelt ores of

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<sup>23</sup> Ibid, p, 115

<sup>24</sup> Ibid, p. 116

copper and tin to make bronze and cast this alloy have spread very rapidly along the Neolithic exchange route. Similar bronze artifacts and casting technology were found from Hong Kong and the coast of Guangdong to Yunnan, into Central Thailand. The transition from the Neolithic into Bronze Age occurred. As far as can be judged at present by the local and long established communities.<sup>25</sup>

The transition is well represented at the site of Non Pa Wai in the Khao Wong Prachan Valley in Central Thailand. Radio carbon dates reveal that copper smelting at Non Pa Wai began in the period 1500-1000BC. During excavation from the two periods (2A and 2B) of the Bronze Age sequence from these places, mortuary objects like ceramic moulds designed for casting a large socketed axe, along with other associated tool for casting a large socketed axe, along with other associated findings and deposits of oxidic copper ores which were rich in copper and low in impurities were found. The ores were crushed into manageable pieces, and charged in ceramic crucibles in which smelting took place. The excavation in Non Pa Wai showed how technology of smelting ores, and casting change in method. Some large ceramic copper smelting crucible, some ingot and ingot mould was found from Non Pa Wai.

Likewise Nil Kham Haeng is a second major smelting site in the valley, located near Non Pa Wai. Copper production continued at this site for about 800 years, from CA, 1100-300 BC. Mixed ore were being smelted here from initial occupation. Ceramic-lined bowl furnaces cut into the ground, and covered by a portable furnace chimney was used for copper smelting operation. Nil Kham Haeng was a center for continuing copper production into Iron Age, and must have supplied copper for extensive exchange network.<sup>26</sup>

In Northeast Thailand at Phu Lon, Natapintu and Pigott investigated a copper mining complex strategically placed to take advantage of the Mekong River as a conduit

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<sup>25</sup> Ibid, p. 118

<sup>26</sup> Ibid, pp. 118-122

for access and distribution of copper ores and bronzes.<sup>27</sup> From here, actual mining shafts have been explored, the stone moulds used to extract the ore and ceramic vessel still lying within. The Pottery Flat excavation revealed a substantial accumulation of crushed ore host rock, containing within evidence of some smelting activity, including slag and fragments of small ceramic crucibles and two casting moulds. The site was given date of 830- 590 BC by Radio Carbon. The analysis of the crucibles by Verman( 1996-7)<sup>28</sup> indicates that they share not only the same shape as those known from village sites on the Khorat Plateau such as Ban Chiang and Bang Na Di, but remarkably they share the same technology of their manufacture as well.

The excavation of Non Nok Tha(1965) in Northern Thailand, located 120 km south of the Phu Lon copper mines, revealed the presence of inhumation burials associated with whole pottery vessel and bronze artifacts. A socketed axe made of a 14% tin bronze was found from over the chest of an adult male as a mortuary offering. Likewise in another burial bronze socketed axe and two crucibles containing fragments of casting spillage testify the local metallurgy.

The 1974 excavation of Ban Chiang revealed Bronze Age grave over a Neolithic cemetery. Bronze Age casting was established within the period 1500-1000 BC. But in some cases date goes further back than the more available date which can be harmonized. The earliest Bronze Age graves in the 1975 excavation area underlay the remains of a clay furnace, surrounded by ceramic crucible fragments still retaining bronze from the casting procedure. Some copper and tin ingots along with a casting mould and crucible fragments were found. Likewise a socketed spear, bronze anklets, bronze axe, bronze bangles were found from the graves of Bronze Age.<sup>29</sup>(Fig 1, 2)<sup>30</sup>

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<sup>27</sup> Natapintu 1988, Cited Higham, Charles, *Early Cultures of Mainland Southeast Asia* (River Books Ltd. Bangkok, 2002). pp. 122-123

<sup>28</sup> Cited, Ibid, p. 122

<sup>29</sup> Ibid pp. 134-135

The 1984 excavation of Ban Na Di which lies 23 km Southeast of Ban Chiang revealed some Bronze Age artifacts. Most of the artifacts were associated to mortuary objects. Some crucibles and bronze were uncovered. One of the interesting features comprised the remains of a clay-lined furnace ringed by bronze detritus and remnants of crucibles. It has been used to heat copper and tin to melting point prior to casting. The site of Ban Na Di has provided evidence for all the stages of bronze casting like sandstone casting moulds, clay mould etc. some of the bronze found from the mortuary context include 19 bronze bracelets with one woman and one bracelet worn by a child. The Bronze Age falls between the span of 900-400 BC on these sites.

1999 excavation by O' Reilly in Ban Lum Khao dated within the period 1400-500 BC, found crucibles and mould fragments indicating bronze casting. Excavation of Nong Nor found small socketed copper implements which were probably imported from the Khao Wong Prachan Valley.<sup>31</sup> Higham concludes that,

*"The bronze age of Southeast Asia can be traced from Lingnan to the Chindwin Valley, and from Yunnan to the Mekong Delta. We can pursue the technical basis of this Bronze age from the mines to the ore processing and smelting facilities and hence to the casting of ingots and their arrival in agricultural village communities. There, smiths used small, clay-lined furnaces to bring their copper and tin ingots to melting point before casting socketed axes and spears in bivalve moulds. Arrowheads were also cast, while clay moulds were used for casting bangles by the lost-wax technique."*

The Bronze Age within this area lies within the period 1500-100BC. It is to be noted that Lingnan, a component region of this region, lies open to the exchange of goods and ideas flowing south from the early Bronze Age civilization of China. China might have involved in introduction of the properties of copper and tin ore when smelted. There were long established exchange networks that would have sped the transmission of ideas as well as ingots. Higham states that "evidence for the social organization associated with

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<sup>30</sup> [http://penn.museum/banchiang/wp-content/uploads/2009/06/2008\\_White\\_Bougon.pdf](http://penn.museum/banchiang/wp-content/uploads/2009/06/2008_White_Bougon.pdf), 22 Aug 2010.

<sup>31</sup> Ibid p. 145, See Fig 7.12 Higham, Charles, *The Bronze Age of Southeast Asia* (Cambridge University Press, UK,1996). p. 147

the mining and exchange of copper suggest a long tradition of community participation without the formation of controlling elites. In the Khao Prachan Valley, there were changes in the means of smelting and casting.<sup>32</sup>

#### 2.4 Iron Age bronze

Bronze culture continued to the proceeding Iron Age. Iron was being used in South East Asia between 300 and 500 BC. Along with iron artifacts, both the quantity and range of bronze artifacts increased greatly from about 500 BC for example from Dong Son. Remarkable of the artifacts are the Don Son drums found in 1997-8 at Crio Son and Tra Loc, Quang Tri Province in Viet Nam.<sup>33</sup> The Co Loa drums, weighs 72 kg, and would have entailed the smelting of between 1-7 tons of copper ore (Nguyen Duy Hinh 1983).<sup>34</sup> One burial from the Long Ca cemetery contained the remains of a crucible and four clay moulds for casting axe, spear head, dagger handle and a bell. The mould for the dagger handle suggests that it may have been intended as a bi-metallic weapon with the blade of iron. Many novel and decorated artifacts form were cast. The drums and rectangular ornamental plaques suggest an interest in ritual and ceremony, personal weaponry like daggers, swords and agricultural objects like socketed bronze plough suggest various objects of varied purpose. It suggests that the Dong Song metal workers were a master in difficult field of bronze casting.<sup>35</sup> The skill required to cast a massive drum surely entailed specialized workshops. The alloys comprised copper, tin, lead and arsenic, and literally hundreds of copper pins were employed to separate the two clay moulds during the pouring of molten bronze. The distribution of such drums covers much of southern China where rich chiefdoms of contemporary Dong Son phase are well known.

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<sup>32</sup> Ibid pp. 166-167 Higham 2002

<sup>33</sup> Ibid pp. 169-177

<sup>34</sup> Cited Higham 2002

<sup>35</sup> Ibid 169-177

Excavation of moated site of the Chi River Valley on the Khorat Plateau revealed evidence of iron and water buffalo.<sup>36</sup> At the large site covering approximately 38 hectares is Non Chai, located in the upper reaches of the Chi drainage system, was excavated by Pisit Charoanwongsa in 1978. Continuous occupation of the site is described in five phases dating from 400 BC through 200 AD. Phases II and III dated between 300 and 200 BC yielded bronze and crucible fragments along with four glass beads. Clay moulds for casting bronze bracelets and bell were found in phase III through V context.<sup>37</sup>

Non Dua, the moated site of the Mun River Valley, yielded a deep stratigraphic sequence, the initial phase of occupation being assigned to the period 500 to 1 BC (Higham 1989:215). Pottery sherds found at Non Dua match both the form and elaborate decorative elements (geometric and curvilinear motifs) of contemporaneous ceramics at Ban Chiang Hian. Excavation by Welsh at Ban Tamyae, located just a few kilometers from the stone temple Phimai, document a pattern similar to that witnessed in the Chi Valley. Bronze found at the lowest level of the site's two and a half meter deep cultural stratigraphy is dated 1000 to 600 BC. Both iron slag and the water buffalo made their first appearance during the Prasat phase dated at 600 to 200 BC. Excavation done by Wichakana in 1986 within the moated site revealed three phases of inhumation graves contained bronze jewelry along with agate ornaments and small fragments of glass beads. "Third phase grave goods were richer and much more varied. Burial two was associated with a bronze head band, bronze earrings and bronze belt with a central buckle or plaque. Iron rings had been placed at the shoulder and in the groin area. A tanged iron knife was found at the left shoulder and a socketed axe had been placed at the left elbow." <sup>38</sup> it

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<sup>36</sup> Higham, Charles (1989:210) Cited, Daniel Eugene Everly, *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia* (Texas A& M University 2004). p 65

<sup>37</sup> Ibid, p. 65

<sup>38</sup> Higham, Charles, *The Bronze Age of Southeast Asia* (Cambridge University Press, UK, 1996). p. 222

indicates that evidence of local smelting activities exists in the form of several smelting furnaces located on the southeastern edge of the site.

The first evidence of iron casting in Southeast Asia is found in the Bac Bo region of Northern Viet Nam in late Dong Son contexts following the area's incorporation into the Chinese Han Empire during the first Century AD. Higham states, iron working in the rest of Southeast Asia was, according to available evidence, based on the small bloomer furnace to produce iron, followed by forging.( Higham 1989: 192)<sup>39</sup> “ Along with importation of the Indian method of iron working and glass agate and carnelian beads, the Kautilyan political doctrine of the fourth century BC Mauryan Empire is likely to have served as impetus for the development of the first large commercial centers on the Khorat Plateau. Thus, instead of a mere thousand years, India's political and economic influence on the Khorat Plateau appears to have extended back for a period of at least two thousand years.”<sup>40</sup>

Bronze objects from the period of 500- 100 BC was found from the excavation done during 1990 in Ban Kan Luang, located on the outskirts of modern day Ubon. Nine large globular clay jars with lids were found at a depth of one to two and a half meters below the original surface. The range of grave goods found inside the burial jars suggests an elite status of those interred. A 45 millimeters high bronze figurine of a man was found in one of the urns, the decorations on the body described as discoid motifs, being matched on the bracelets. The importance of this object was representation of human figures in bronze. Virtually human figures are unknown in Khorat Plateau sites but are present in Bac Bo at the same juncture.<sup>41</sup> Bronze ornaments were thinly casted by lost

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<sup>39</sup> Everly, Daniel Eugene, *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia*, (Texas A& M University 2004). p 69

<sup>40</sup> Ibid, p. 69

<sup>41</sup> Hingham, Charles, *The Bronze Age of Southeast Asia* (Cambridge University Press, UK, 1996). pp. 228-229

wax technique into eight types. Bronze ornaments such as bangles are similar to artifacts of Dongson culture (500-100 BC) which has its center in North Vietnam.<sup>42</sup>

Influence of Cham in Khorat region is evident from the bronze artifacts found from the coast of Vietnam from the mouth of the Mekong to the southern boundaries of Dong Son culture in the Bac Bo region of northern Vietnam. Jar burials with cremated remains are found often large, covered with lids, aligned in rows, approximately a meter below the present surface and contain a range of grave goods. radio carbon date gives 400 to 275 BC at the site of Hang Gon which is contemporary to Ban Kan Luang. On the west side of the Truang Sen Cordellero near Ban Ang in modern day Laos, two groups of stone burial jars rest on the modern surface of the “ Plain of Jars”. These jars yielded glass and carnelian beads, bronze jewelry and iron knives, arrowheads and spear heads. Small bronze bells and a bronze figurine similar to those from the Ban Kan Luang site were found at the Bang Ang site, which has been dated at 300 BC. Everly states that Cham continued to exchange trade with their motherland in the islands to the south, but it is likely the Cham who brought the knowledge of iron working and importation of glass and carnelian beads from India. Their style of treatment of the dead can be found at the mouth of the Mekong, in the highlands of Laos and at ubon. Cham brought Indian Kautilyan political doctrines that led to the centralization of authority and the development of the first large commercial centers on the Khorat Plateau.<sup>43</sup>

Copper mining activities are evident for example from Khorat Plateau along the Mekong River; large deposits of copper ores are available. Excavation of 1984/ 85 conducted by the Thailand Archaeometallurgy Project at Pottery flat revealed a single **stratum comprised primarily of crushed sharn. A charcoal sample from the basal level of the stratum, presumably associated with some of the initial activity of the site, is dated to ca. 1750-275 BC.** Numerous rice chaff tempered crucible fragments, some with green

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<sup>42</sup> Daniel Eugene Everly, *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia*, (Texas A& M University 2004). p70. See Figures 1,2,3 pp. 71,72, 73

<sup>43</sup> Ibid, p. 75

dross adhering, a fragment of a sandstone mold, a fragment of a ceramic mold, large amount of charcoal and some slag point to the presence of metal working activities at the Pottery Flats.(Natapintu 1988: 113)<sup>44</sup>

The use of the extensive river systems as well as a means to transport exotic goods and ideas was a key prerequisite practice of the indigenous people that facilitated the spread of the metallurgical technologies throughout Peninsular Southeast Asia within the span of the first millennium BC. Despite the availability of large quantities of copper, use of this material without being alloyed with tin appears to be totally absent from the region's archaeological record. This together with the fact that the bronze artifacts found at Bac Bo and the Khorat Plateau are the oldest of any in Peninsular and Island Southeast Asia supports the impression that the technology to produce those items came from an outside source that was not likely east Asia. Data from second millennium BC cemetery at the Non Nok Tha site, located along the Phetchabun Range in Northwestern corner of the Khorat plateau, indicate that a stone mould and a rice tempered clay crucible were found along with bronze grave goods that exactly match the design from the stone mould. Likewise data from occupational zone at Ban Na Di site, located on the Sakhon Nakhon plate in the extreme Northeastern corner of the Khorat Plateau indicate that clay lined bowl furnaces, sandstone moulds, crucibles and clay mould have been found in association with bronze grave goods dated to the first millennium BC. At present some types of tools are being used by the smiths to manufacture bronze objects by the lost wax casting process on the Khorat Plateau.<sup>45</sup> Therefore there is a strong possibility of lost wax casting process may be the method by which bronze artifacts were manufactured in the wider area to mainland Southeast Asia.

Likewise according to the guide book of the National museum Bangkok<sup>46</sup>, the copper fields with evidence of prehistoric mining were discovered in Thailand at present

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<sup>44</sup> Cited, Ibid, p. 79

<sup>45</sup> Ibid, p. 80

<sup>46</sup> *Guide to the gallery of Thai History* (National Museum, Bangkok, Fine Arts Department, 2002).

both in the northern and central regions at Phu Loan in Nong Khai province, at Khao wong Phra Chan in Lop Buri province and at Noan Pah wai in Huey Pong village, Khok Samrong district of Lop Buri Province.

## 2.5 Bronze in Historical Age

There is a great historical gap between the known Ban Chiang cultures to the early known culture of Thailand. However from the beginning of the first century AD new flow of trade and migrations were taking place in this part of Southeast Asia. Indian merchants seeking new products and markets began moving eastward and they sought to set up trading posts as key points of call, integrating themselves into the local communities. In the process, they introduced new concepts including art objects and techniques of casting. The effects of Indian culture in every aspect of Thai as well as in the South Asian life, literature, language, art, architecture, religion was beyond calculable. The art of Thailand in the first to sixth centuries is characterized by a total Indian domination either by imports of statues or by local creation of sculptures and other objects which were copies of Indian works or whose stylistic elements can be directly traces to a particular Indian school of arts. The concepts of Indian style existed until the 16<sup>th</sup> century.<sup>47</sup>

*During third to sixth century, stretching across the peninsula in the region of Surat Thani, Dan Sun was a well organized state whose artisans possessed considerable expertise in casting bronze as evidences by bronze drums, found at several sites.*<sup>48</sup> A 20 cm tall, standing bronze Buddha in the collection of National Museum of Nakhon Si

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<sup>47</sup> Beek, Steve Van, Tettoni, Luca Invernizzi, *The arts of Thailand* (Periplus Editions Ltd, Hong Kong, 1999). p. 51

<sup>48</sup> *Ibid*, p. 52

Thamarat is dated between fifth and sixth century is a very important example for the evidence of bronze craftsmanship in Thailand.<sup>49</sup>

Tradition of bronze art continues further to the Mon Dvaravati period which covered the area of central Thailand of which the art is named as Dvaravati School of art, in the span of sixth to eleventh centuries.( Fig 3,4)

Srivijaya was the most outstanding period for art which flourished between eighth and thirteenth centuries on the south of Thailand which covered its territories to Sumatra and Borneo. Srivijaya marks a high point in Thailand's artistic developments. The artists produced finest stone sculptures ever produced in the country and for reaching a new height in bronze casting especially creating large pieces of sculptures. Bronze craftsmen produced Buddhist images, mainly Bodhisattva Avalokitesvara of flawless beauty that stands as the finest example of art in Southeast Asia. ( Fig. 5)

Likewise Lop Buri artists preferred to work in bronze and used bronze sometimes used high silver content which gave the look of oiled iron. The art works are monumental with up to 3.3 meters tall. An example can be taken of a crowned bronze Buddha image (12<sup>th</sup> C. AD) from the collection of National Phraya Museum of Ayutthaya.

Bronze art and its workmanship reached its zenith during Sukhothai and Ayutthaya period. Sukhothai sculptors preferred bronze as their medium. Thais may have preferred a material which starts from nothing and evolves into something, unlike carving, which begins with a massive block and is chipped away at its bulk to reduce it to the desired form. Shaping the wax and clay of a bronze mold by hand is a sensuous experience which allows the subtle feelings to flow into the lifeless clay. It also imparts the smoothness and fluidity which are the prime characteristics of Sukhothai sculpture and which cannot be achieved with stone. The Thais learned the art of bronze from Mons, southern Indians, whatever technology remained after the disappearance of Ban Chiang

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<sup>49</sup> Ibid, p. 57

and the Khmers. Their techniques were perfected by Sri Lankan monks visiting Sukhothai. The latter, however, imparted their knowledge long after the Sukhothai style was well established, so were able to exert little influence on the artistic sensibility of the sculptors.<sup>50</sup>(Fig 6)

The principle activity of Ayutthaya sculptors was the creation of Buddha images and some Hindu images. Bronze was the principle medium. Until the period of Ayutthaya the techniques of casting was very much in developed stage and the sculptors were the technical masters. The method of bronze casting until this period obtained was the traditional lost wax or *cire perdue* casting method which was prevalent from the centuries before. ( Fig 7)

## 2.6 Bronze in Modern Age

According to art critics Bangkok period sculptures are not shining stars in the annals of Thai art.<sup>51</sup> It is said that artists were not as prolific as those of previous age; who demonstrated an admirable willingness to explore new themes. The inspiration of art was not only religious and it went through gradual modernization process. Sculptures of the period between 1782 to 1851 delved into old literary and Hindu texts to find new themes and new ways in which for example to depict the Buddha, and created a variety of pieces without precedent. Early Bangkok sculptors also preferred to work in bronze as well as in wood and stucco. It was a challenging period for King Rama I to reestablish the legacy of art after the destruction of Ayutthaya. People were gathering their will and courage to help reestablish the new kingdom. In order to fill Bangkok's many new Wats with Buddha images, King Rama I brought statues from Sukhothai and Ayutthaya which had not been destroyed by looters. He provided sculptures with examples of various styles enabling them, like court poets, dramatists, artists and religious scholars to create the work lost in Ayutthaya's destruction.

<sup>50</sup> Ibid, p. 113

<sup>51</sup> Ibid, p. 180



King Rama III(1824-1851) was an active patron of arts. Tamra Devarupa( in Sanskrit meaning- features of copper god icon) , a Hindu iconological treaties were written at the time of King Rama III. Many Buddhist and Hindu deities were cast in bronze during this period. Among the most remarkable creations of sculptures created during this period is a series of 33 kings <sup>52</sup>(40 according to Subhadradis Diskul<sup>53</sup>) which depicted the main events of Buddha's life. Earlier Bangkok period artists created numerous statues of disciples and hermits. Other similar examples are the sculptures of King Rama I and Rama II established at the both side of the Emerald Buddha temple. (Fig 8)<sup>54</sup>

King Rama IV, with his other political, religious and social reforms, took the same approach in arts. New forms of bronze were casted during this period. From King Mongkot's period western and Thai artists started to make sculptures of the ruling king. King Mongkot received the first western- style bronze busts and sculptures from Queen Victoria of England as a gift of good will in 1859. Another 59 cm high standing sculpture wearing a traditional Thai dress of King Mongkot was presented by the French Government in 1863. The sculptures were made upon the base of pictures provided.(Fig 9) With the interest of making more realistic sculpture of the king he commissioned a local artist named Luang Theprojana( later named Phraya Chindarangsana) to make his standing bronze statue which was very remarkable in its own way.<sup>55</sup> Another bronze statue of the King Mongkut was made by Prince Praditthavorakarn in 1871. (Fig 10)<sup>56</sup>

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<sup>52</sup> Ibid, p. 181

<sup>53</sup> Subradradis Diskul, *Art In Thailand: A brief History*( Amarin Press, Bangkok, 1981). P.29

<sup>54</sup> Apinan Poshyananda, *Western- Style Paintings and Sculptures in the Thai Royal Court* (Bureau of the Royal Household,1992)

<sup>55</sup> Wong, Ka, F. *Vision of a Nation: Public Monuments in Twentieth- Century Thailand*, (White Lotus, Bangkok, 2006). p.p. 14.15

<sup>56</sup> Apinan Poshyananda, *Western- Style Paintings and Sculptures in the Thai Royal Court* (Bureau of the Royal Household,1992). p. 31

After King Mongkot, his son King Chulalongkorn, Rama V was seen always as an admirer of art and very fond of western art and architecture. King Rama V gave new dimension to the tradition of bronze art. He ordered to make copies of famous images like Phitsanulok's venerated Phra Buddha Jinnarat( Fig 11) now in Wat Benjanabopit. He also commissioned to undertake original Hindu and Buddhist art. The images were inspired by the *Tamra Devarupa*, the Hindu Iconological treatises. The images were made in entirely traditional way of lost wax casting method.<sup>57</sup>

King Chulalongkorn was taking very keen interest on making his portrait and bronze image while he was on a tour of Europe. On his first visit to France he commissioned French artists to make his portrait and bronze image. It is interesting to note that when Thai artists were capable to make such a good quality of bronze arts, why Thai kings chose European artists to make their portrait and sculptures? It was definitely the exposure to the western world at the period when they were having profound change in habit and thought. King Chulalongkorn was very much influenced by the French artist on their skill of making art work very quick compared to Italian counterparts.<sup>58</sup>

However king Chulalongkorn was impressed with the engineers and architects of Italy, some of them were commissioned by the Chulalongkorn's government in service of building many important royal palaces and public places in Thailand.<sup>59</sup> King Chulalongkorn visit to European countries brought back not just ideas for technical and economic advancement, but also architects, painters and sculptors, mostly from Italy. These artists worked together with their Thai counterparts at court. Then after the way the art was regarded and the forms it took underwent gradual transformation in Thailand. Historical facts prove that major renovations and reforms of Siam with the spirit of

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<sup>57</sup> Beek, Steve Van , Tettoni, Luca Invernizzi, *The arts of Thailand* (Periplus Editions Ltd, Hong Kong, 1999). P. 185

<sup>58</sup> Peleggi, Maurizio, *Lords of Things: The Fashioning of the Siamese Monarchy's Modern Image* (University of Hawaii Press, USA, 2002). p. 107

<sup>59</sup> Watanangura, Pornsan( editor)*The visit of King Chulalongkorn to Europe in 1907: Reflection on Siamese History* (Chulalongkorn University Printing House, Bangkok). P. 109

modernization were initiated by King Chulalongkorn before his first visit to Europe. Art and architecture in western style were also adopted in Siam long before the voyage of 1897, in particular through artistic contribution of western private entrepreneurs in Bangkok. Western artists and architects entered into the service of the Siamese government with an important role to develop the infrastructure and new form of art and architecture. It was the national plan to modernize the nation.

One of the most profound changes and achievement in art was a great concern with realism and the techniques in creation of art objects. In 1897, a life size marble sculpture of Rama V was commissioned to an Italian professor, Cesare Fantachiotti, in Florence. The statue is now placed in the Chakri Maha Throne Hall which was the realistic depiction of the King, wearing full western military attire with medals and sashes, holding a top hat in his right hand with left hand leaning against a long sword that touches the ground. The king was much delighted by the image which signified a westernized and civilized political power. Further he ordered Fantachiotti to model bronze versions after this statue and then sent them to foreign sovereigns as well as local subjects as a token of diplomacy. (Fig12)The climax of this reached in 1908 when the first public monument, the equestrian statue of King Chulalongkorn was unveiled on the occasion of the fortieth anniversary of his accession on the throne was celebrated. After this a new chapter in monumental art history had officially began.<sup>60</sup> (Fig 13,14,15)

King Chulalongkorn's son King Rama VI, under the royal patronage conducted significant activities for the introduction and development of the concept of modern art in Thailand. "The reign of King Vajiravudh was a period when traditional arts and crafts of the Royal preference were promoted. The king was determined to revive the Thai people's interest and appreciation of Thai culture, which had been on the decline in the face of the powerful western influence and the enthusiasm of the *Siamese* in adopting

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<sup>60</sup> Wang, Ka F., *Vision of a Nation, Public Monuments in Twentieth Century Thailand* (White Lotus, Bangkok, 2006). pp. 17,18

Western culture.”<sup>61</sup>To revive and restore the traditional Thai arts of different field, King Rama VI established the Department of Fine Arts in 1911. In the following year the arts and crafts school was established where instructions were provided in a range of visual and performance arts. King Rama VI commissioned a number of overseas artists to work on the decoration of various palaces and throne halls. The Royal Siam government requested a proficient sculptor from Italy. From this request Professor Corrado Feroci, an Italian sculptor from Florence was selected from 200 applications to work in the Department of Fine Arts. Professor Feroci’s contribution on Arts in Thailand gave a new dimension in Thai arts. A foundry was made in a warehouse beside the Department of Fine Arts in 1941. In 1987, the office of the Division of Handicraft was moved to Salaya district in Nakhon Pathom where new and modern foundry was built for more capacity. The old foundry is converted to a Museum of models and prototype of the National Statue bearing the name as “Hall of Sculpture”.(Fig 16)<sup>62</sup>

The special and royal statues were made in the then found foundry of the Fine Arts Department under the supervision and active participation of the Italian sculptor Corrado Feroci or Silpa Bhirasri ( his Thai name).He was in service for the Siam Government from the time of King Rama VI from 1923 to 1962 until his death. He acted as a father figure and mentor for generations of Thai artists. The most outstanding life size statues made by Silpa Bhirasri were the King Vajiravudh’s(Rama VI) (1941)statue of Lumpini Park(Fig 17), King Prajadhipok’s( Rama VII) statue, Thao Suranari statue of Nakhon Ratchasima province(1934), statue of King Naresuan(1959), Monument of King Naresuan(1958)of Don Chedi of Supanburi etc. Another significant statue made by him and prince Naris was monument statue of King Rama I (1932) placed on the memorial bridge. Some other statues made by him along with his students are King Chulalongkorn

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<sup>61</sup> Apinan Poshyananda, *Western- style Painting and Sculpture in the Thai Royal Court* (The Bureau of the Royal Household, Bangkok, 1992). p. 288

<sup>62</sup> Nilwan Nildum, *The Architectural Heritage For Wang Tha Phra And Wang Thanon na Phra Lan: From The Palaces of Builders and Craftsmen To the Art And Cultural Centre* (Silpakorn University, Bangkok, 2003) .

(Rama V), King Ananda Mahidol(Rama VIII) (1959), King Naresuan the great placed in Non Bua Lom Phu province, King Ramkhamhaeng the Great, relief panels of the democracy monument<sup>63</sup> etc.

Students (Fig 18, 19) (Appendix 5, Bio-data 1) taught by Silpa Bhirasri were having very good performance on producing many bronze statues during and after his death. Because of the public demand and fashion of making statues and monuments of the Thai elites, the Group of sculptors of Thai Traditional Arts Division of The Fine Arts Department had very good reputation until present.

Before the introduction of modern arts, Thai artists had traditionally served an apprenticeship under a master painter or sculptor, who would set them exercises in technique which trained them in every aspect of their work. There was relatively very little room for variation in style or content and the concept of art as the expression of an individual vision was unknown. Silpa Bhirasri's position was to develop their own skills and styles to break free from the constraints of their predecessors, and to serve as the master whose lead was followed by his disciples. Under the support of Prince Naris Ranuwattiwong<sup>64</sup>, a patron of art, a "Renaissance Man", "The Great Teacher"(borom khuru), whose impact on Thai art was phenomenal<sup>65</sup>, Silpa Bhirasri was able to establish his impression on modern art in Thailand. He encouraged the Thai artists and sculptors to study in the European tradition, followed western conventions of drawing and portraiture and most importantly, sculpture. Silpa Bhirasri's initiative succeeded on the establishment of the Silpakorn University. He inspired his students to look for new ways of both classical arts and European art.

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<sup>63</sup> Wang, Ka F., *Vision of a Nation, Public Monuments in Twentieth Century Thailand* ( White Lotus, Bangkok, 2006). pp. 14-117

<sup>64</sup> This information was provided by Ajarn M.R. Chakrator Chitrabongs, Shastravighya, Chulalongkorn University.

<sup>65</sup> Ibid, p. 30

The discussions have revealed the fact that bronze as a fascinating metal still holds the popularity at present with the deep rooted culture of using bronze as an object of utility and art from the pre historic society. With the variation of presenting the art form the contemporary bronze statues made in modern scientific way and process is the testimony of the different monumental sited of the past kings and hero personnel scattered all over Thailand.

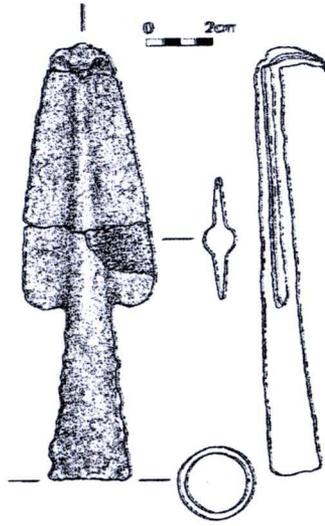


Figure 1. Bronze spear point, BCES 762/2834 from BCES Burial 76 dates to the early second millennium B.C., Ban Chiang

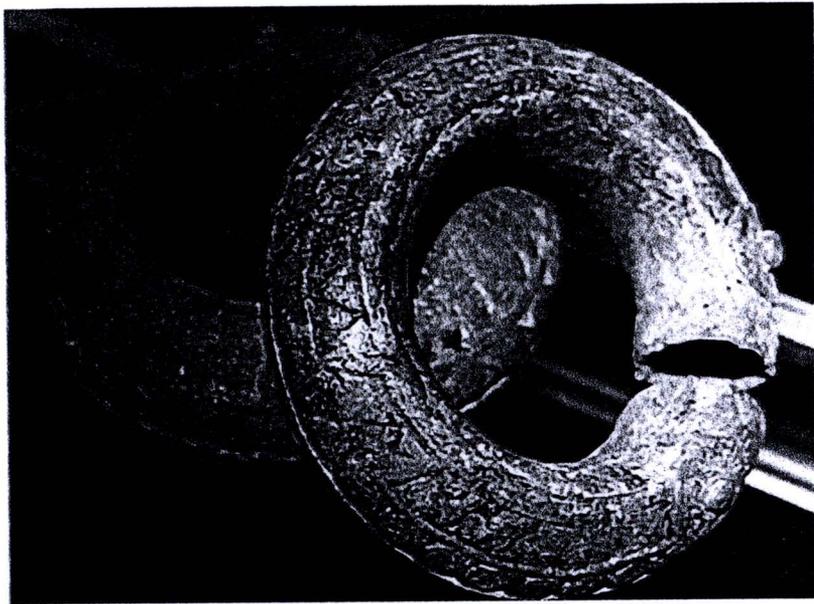


Figure 2. Bronze bangles found from Ban Chiang excavation.



Figure 3. Buddha Descending from Tavatimsa Heaven, bronze, Dvaravati art, 8<sup>th</sup>- 9<sup>th</sup> century, National Museum, Bangkok.

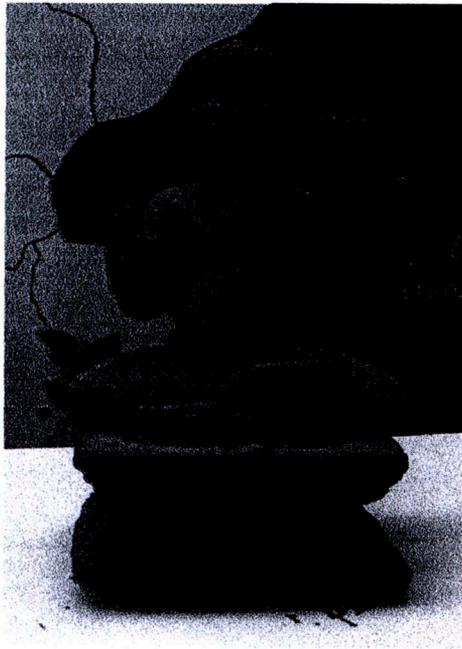


Figure 4. Teaching Buddha, Dvaravati Art Style, 8<sup>th</sup> -11<sup>th</sup> century, Excavated at Pong Tuk, Kanchanaburi Province, 1927, Collection of National Museum Bangkok.

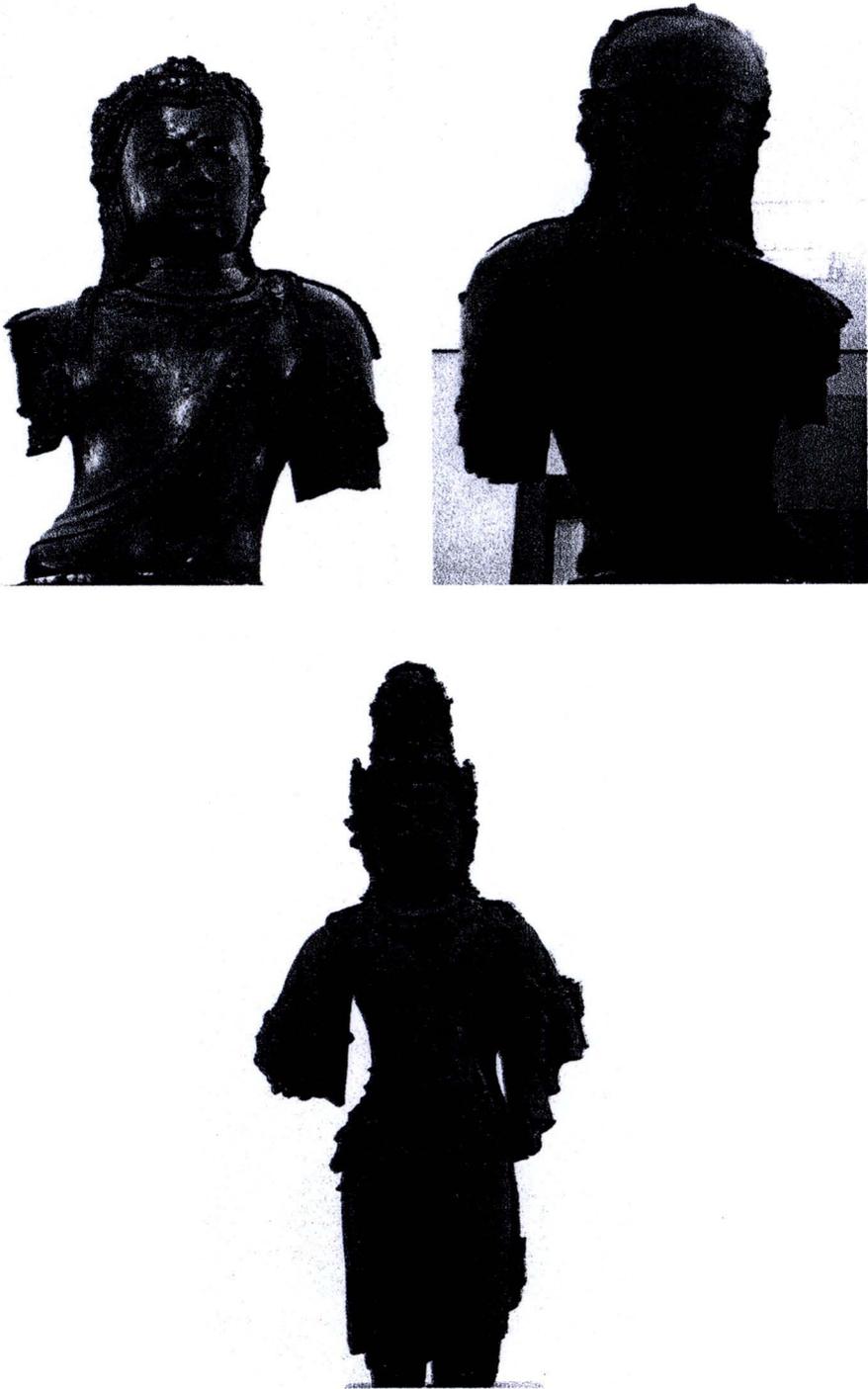


Figure 5. Avalokitesvara Bodhisattva, Shrivijaya Art Style, 9<sup>th</sup> century AD, From Wat Phra Boromathat, Chaiya District, Surat Thani Province.

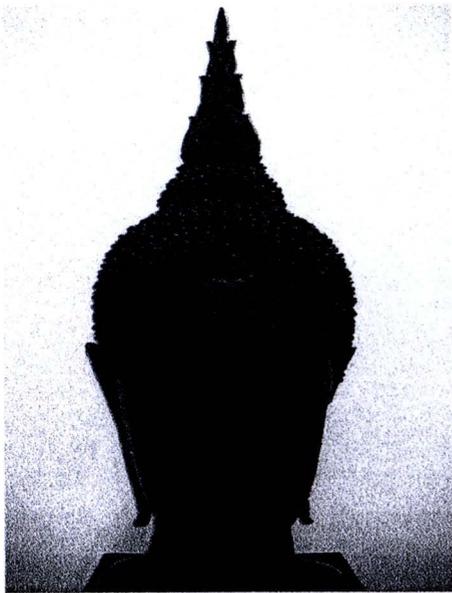


Figure 6. Sukhothai style bronze Buddha and Hari Hara sculptures, 14<sup>th</sup> -15<sup>th</sup> century, National Museum, Bangkok.

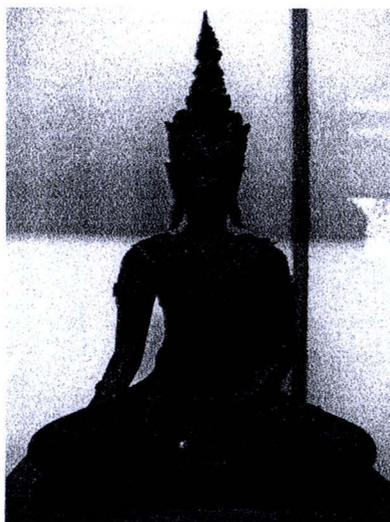


Figure 7 Seated crowned and bejeweled Buddha, bronze, Ayutthaya Style, 16<sup>th</sup> century. Collection of National Museum, Ayutthaya.

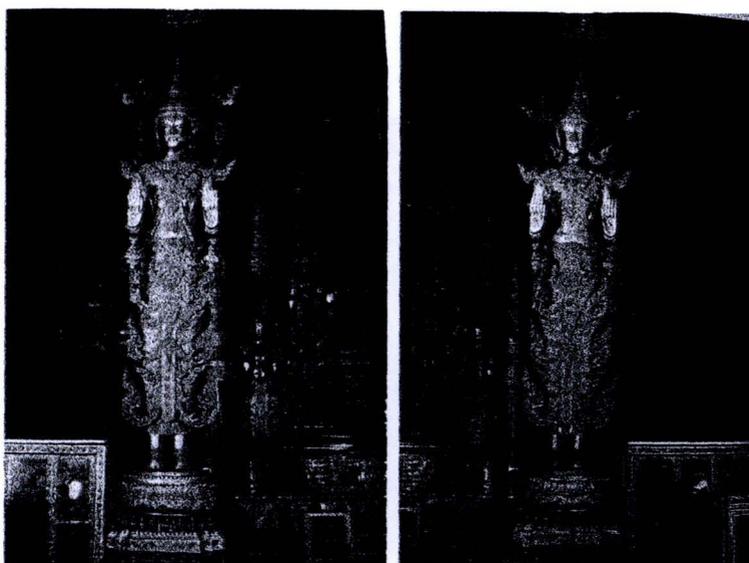


Figure 8. Phra Phuttha Loetla Napalai, and Phra Phuttha Yotfa Chulalok, Bronze with gold enamel and precious stones, third reign, height 300cm. Convocation Hall, temple of Emerald Buddha, Bangkok.<sup>66</sup>

<sup>66</sup> Apinan Poshyananda, *Western-Style Paintings and Sculptures in the Thai Royal Court*, (Bureau of the Royal Household, 1992), p. 16-18

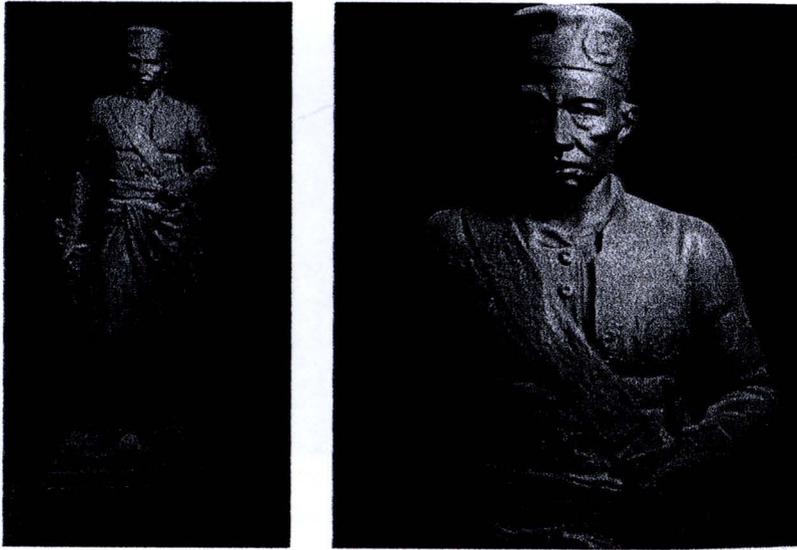


Figure 9. Emile Francois Chalrousse, King Mongkut, Gilded Bronze, Height 59 cm, 1963<sup>67</sup>



Figure 10. King Mongkut, Gilded Bronze, height 160 cm, 1871, Phra Thepbidorn Hall, Temple of the Emerald Buddha, Bangkok, made by Prince Praditthavorakarn.<sup>68</sup>

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<sup>67</sup> Ibid, plate 27( 1)



Figure 11. Phra Buddha Jinnarat, bronze, Pitsanulok.

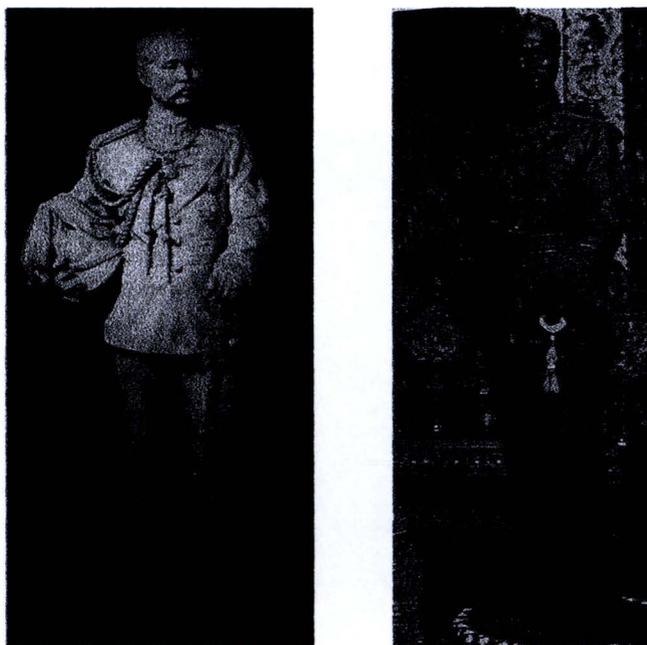


Figure 12. Marble(1897) and bronze(1901) life size sculptures of the King Chulalongkorn made by Cesare Fantacchiotti.<sup>69</sup>

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<sup>68</sup> Ibid. P. 31

<sup>69</sup> Ibid. pp.153- 154

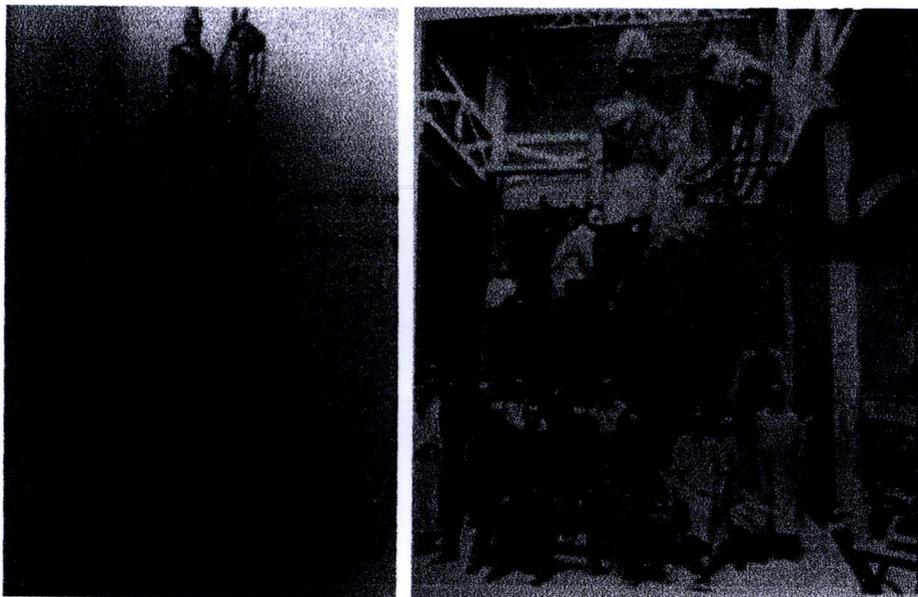


Figure 13. Sketch and the equestrian sculpture of the king Chulalongkorn. Foundry members of Georges Earnest Saulo, Susse Freres, France 1907- 1908<sup>70</sup>



Figure 14. Photograph of silver jubilee of the King Chulalongkorn's coronation, 11 November 1908, Bangkok.<sup>71</sup>

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<sup>70</sup> Ibid, pp.110-113

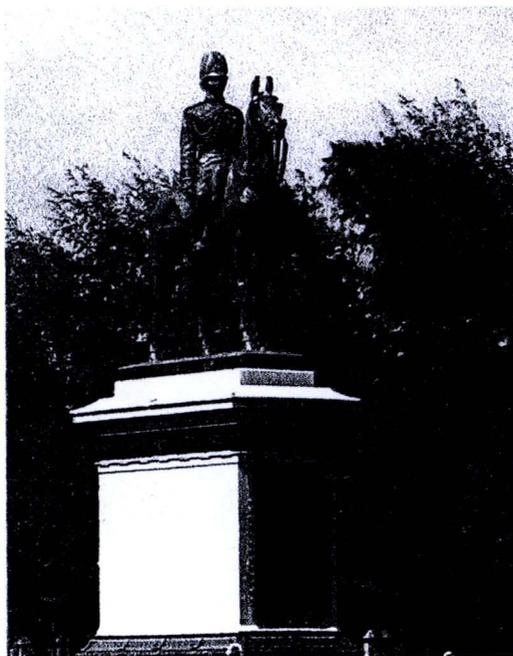


Figure 15. The equestrian statue of the King Chulalongkorn in front of Ananta Samakan Throne Hall or Royal Plaza, by Georges Earnest Saulo, 1908



Figure 16. Hall of Sculpture, Fine Arts Department, Bangkok.

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<sup>71</sup> Ibid, pp.110-113



Figure 17. Monument of King Vajiravudh, Rama VI (1941) by Bhirasri, Lumphini Park, Bangkok.



Figure 18. Professor Silpa Bhirasri at center with his students.



Figure 19 Ajan Boonsoong, Professor Silpa Bhirasri's student.