



# *Refurbishment of* **Amaravati Gallery**

**Government Museum, Chennai**

**Editor**

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Principal Secretary and Commissioner of Museums  
Government Museum, Chennai - 600 008.

**Sub-Editors**

**R. Balasubramanian,**  
Curator, Government Museum

**and**

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Asst. Executive Engineer (M)  
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## PREFACE

The Government Museum, Chennai has played a significant role to bring out the cultural and natural treasures of South India for the benefit of posterity. It is the foremost Government Museum in the sub-continent of Asia. Six independent buildings located in this complex are grand repository of art gallery, theatre, public libraries and remains the multipurpose museum is divided into 11 sections and 48 galleries. They are: - 1) Geology 2) Archaeology 3) Zoology 4) Anthropology 5) Numismatics 6) Botany. Among the prominent Galleries are 1) Hindu Sculpture Gallery 2) Bronze Gallery 3) Amaravati Gallery 4) National Art Gallery. They give us an accurate idea of some of our traditional cultural, literary symbols and archaeological evidences.

A prime attractions are, the Buddhist Sculptures of Andhra Pradesh containing the earliest specimen of the art and architecture displayed at the Amravati Gallery. Originally, the enormous varieties of wonderful sculptures were embedded on the wall. Lime Stone is used as a medium of art in India since the time of Asoka (273-232B.C.) Due to negligence of maintenance work on the heritage building and result of faulty road laying policy, building was severely affected. Consequently, the displayed lime stone sculptures were also affected. This guide book reveals the methods adopted for the rectification in the name of ***"Refurbishment of Amaravati Gallery"***.

I wish to compliment my predecessors who have taken efforts and keen interest to obtain funds from the GOI. I wish to place on record my gratitude to the Committee members nominated by the Government who shared their experiences for the Refurbishment of the Gallery. I take this opportunity to express appreciation to the Engineers of Public Works Department for the execution of

the Conservation Works. I record my appreciation for the efforts of R.Balasubramanian, Curator, Government Museum and R.Narayanan, Assistant Executive Engineer (Monuments), Department of Archaeology whose services were invaluable at the time of execution in giving technical guidance to Public Works Department and in compiling this document in a professional and systematic manner.

Even though that there were a number of publications available about the Amaravati Sculptures, this publication brings out the status of the marbles as they were in situ and the conservation efforts undertaken over time at the Government Museum, Chennai.

Chennai  
24-03-2011



Principal Secretary and Commissioner



## REFURBISHMENT OF AMARAVATI GALLERY

### **Birth of The Government Museum:**

The Multipurpose Government Museum of Chennai was established in 1851 CE. under the officer in-charge of Dr. Edward Balfour, who was the Medical Officer of the Governor's Body guard. The first announcement regarding the opening of the Government Museum was noticed in the Fort St. George Gazetteer dated 29<sup>th</sup> April 1851 CE.. The Museum started with 1100 geological specimens of the Madras Literary Society at the first floor, in the college of Fort St. George, in the premises of the present office of the Director of Public Instruction on College road.

As the building was dilapidated, it was shifted to Pantheon building during December 1854 which was known as the Public Rooms or Assembly Rooms where the elite people of the city met. The building was being utilised for banquets, balls and dramatic performances from the last decade of the 18<sup>th</sup> Century. The property was originally 43 Acres in extent which extended from Casa Major Road to the present Police Commissioner's Office Road. Its area was gradually reduced to 16.25 Acres of land. H.Irvin the consulting Architect to the Government of Madras designed the Museum with a marvellous reading room i.e. the present Connemara Library. It was formerly opened on December 5<sup>th</sup> 1896 by Sir Arthur Elibank Havelock, the then Governor and named after his progenitor, Lord Connemara, Governor of Madras. The Anthropological galleries and the Museum theatre were opened.

Later, The Museum was further developed, as the proposal was approved by the Court of Directors of the East India Company in London. Post-independence Chennai Government Museum has various collection sections and is sponsored by the State Government. There are six independent buildings in the Museum

campus, which constitute 11 sections. These sections include Geology, Archaeology, Zoology, Anthropology, Numismatics, Botany and Sculpture. Also, there are four major galleries in the Archaeology section of the Museum, such as the Hindu Sculpture Gallery, Jain Gallery, Bronze Gallery and **Amravati Gallery**.

### **ORIGIN of Amravati:**

Amravati is situated 32 Kilometers from Guntur and 46 Kilometers south west of Vijayawada in Andhra Pradesh. As on date, locally called as “Hill of Lamps” Around the year 1796, an enterprising zamindar shifted his residence from crowded Chintapalli to deserted Amaravati. He soon invited other people to settle in Amaravati. This led to the construction of roads and houses in the area. In the course of construction, the workers often found large bricks and carved limestone slabs below the ground. The news soon reached the ears of Colonel Colin Mackenzie, who visited the site twice (in 1787 and 1818) and prepared drawings and sketches of the relics in the area. Eventually, several European scholars like Sir Walter Smith, Robert Sewell, James Burgess and Alexander Rea excavated the site and unearthed many sculptures that once adorned the stupa. In recent decades, the Archaeological Survey of India has conducted further excavations in the area. Many bas-relief medallions and panelled friezes decorated the Amravati **stupa**. Similar to Sanchi **Stupa**, the **stupa** was decorated with carvings of life and teachings of Buddha and events of Jataka Stories, e.g. taming of a rogue elephant by Buddha. The 95 ft tall **stupa** was made of brick with a circular dome and platforms protruding in four cardinal directions. Recent excavations have revealed remains of an Asokan pillar, the first such example of **Mauryan art found in South India**.

The inscribed history in quartzite pillar of Amaravati begins from Asoka, the renowned Mauryan Emperor who ruled from 272 to 235B.C.E. Vajrayana



traditional sources stated that the Buddha preached at Dharanikota/Dhanyakatakam and conducted Kalachakra ceremony, which would take the antiquity of Amaravati back to 500 BCE.

Taranatha, the Buddhist monk writes: "On the full moon of the month of Caitra in the year following his enlightenment, at the great stupa of Dhanyakataka, Buddha emanated the mandala of "The Glorious Lunar Mansions" (Kalachakra). This shows that Dhanyakatakam (Amaravati) was a very important place at the time of composition of this tantra. The recorded history of Amaravati and nearby Dharanikota dates from 2nd century BCE. It was the capital of Andhra Satavahanas who ruled from 2nd century BCE to 3rd century CE. After the decline of Satavahanas, Andhra Ikshvakus and later Pallava kings ruled Krishna river valley. Subsequently, Eastern Chalukyas and Telugu Cholas held sway over the region. Kota Kings were in control of Amaravati during the medieval times. Kota kings were subdued by Kakatiyas in 11th century CE and Amravati became part of the unified Telugu empire. The region between Krishna and Godavari rivers was an important place for Buddhism from the 2nd century BCE. During the Satavahana period (2nd century BCE-3rd century CE), Dharanikota near Amravati was chosen as the capital. The *stupa* was then adorned with limestone reliefs and free standing Buddha figures. During the period of the decline of Buddhism, this *stupa* was neglected and it got buried under rubble.

It was in this state of ruin and neglects that Colonel Mackenzie, then Surveyor General, discovered them in 1801 in a trench 10'-0" wide and 12'-0" deep near the village of Amareswaram or Amaravati on the banks of the river Krishna, 45 miles west of Vijayawada. He is stated to have recognised the value of the slabs, made some excavation on the spot and in 1815 published an account of his proceedings. In 1830, Mr. Robertson, Collector of Masulipatnam, brought some of



the Amravati sculptures to Robertsonpet near Masulipatnam named after him. He kept them in the market place for beautifying it. In 1835, Sir Frederick C Adam, Governor of Madras visited Robertsonpet near Masulipatnam and saw the sculptures and ordered the same to be brought to Madras and kept with the Madras Literary society.

### **Gallery at Government Museum:-**

Ever since the discovery of the "Dipaladinne-Mound of Lamps" by Colonel Colin Mackenzie (1797 and 1816), possible efforts were made by Archaeologists like Smith and Elliot (1845), James Burgess(1881), Alexander Rea (1888-89, 1905-06, 1908-09) to unearth sculptural remains of the Mahacaitya. Subsequently Archaeologists like Mr. Burgees, Sri. T.N. Ramachandran, Dr.R.Subramanyam, Dr.K.Krishnamurthi and Dr. I. Karthikeya Sarma have worked on it. During the first decade of the last century, the then District Collector of Krishna District in Andhra Pradesh, followed it with many Archaeological excavations at Amravati *stupa* site and brought to light many invaluable lime stone sculptures such as drum slabs, dome slabs, lotus medallion etc. and brought to Madras when it was under the Madras Territory. After Surgeon Balfour took over as Officer-in-charge of the Madras Museum, he made efforts to save them for the Museum. As a result, the first batch of the finest sculptures arrived in 1856. Most of them were sent to London in 1859 through Madras Port and now they are on display in the British Museum at London.

The bulks of the rest 299 pieces were secured during Dr. Bidie's time as detailed below and were shifted to the Government Museum, Madras. It was displayed in the present hall which is adjacent to the Hindu Sculptures gallery since 1897, and ranks with the art of the great ancient cultures of Egypt, Mesopotamia etc.



## Details of the Amaravati Sculptures with the Periods, left over by the Britishers

- 1 Lower part of pillar  
On either side are half lotus designs over  
a border of foliage. 150 CE.



- \*3 Fragment of pillar  
The sculpture in the broken circular panel  
depicts the scene of Mara in council with his  
sons 150 CE.



- 4 Worshipper  
Headless and seated, his heavy ornaments  
and simple drapery are of interest 100 CE.



NOTE :

\*marked sculptures are displayed in the gallery. Others are in reserve collection.

- \*5 Cross bar  
Vidhurapandita Jataka 150 CE.



- \*6 Coping fragment  
Unidentified 150 CE.



- 7 Octagonal capital rounded at the top  
It has window designs enclosing human heads on alternate faces. 150 CE.



- 8 Cross bar  
Lotus designs on either side 150 CE.





- 9 Relic casket  
It is made of red sand stone 100 CE.



- \*10 Coping fragment  
Temptation of the Bodhisattva by Mara.  
150 CE.



- 11 Cross bar  
Contains lotus designs 150 CE.



- 12 Octagonal capital rounded at the top  
The windows on alternate faces are shown  
above rail patterns 200-250 CE.



- 13 Cross bar  
Contains lotus designs 150 CE.



- \*14 Cross bar with sculptured Medallion  
Depicts the taming of the elephant  
Nalagiri. 150 CE.



- 15 Base portion of pillar  
Have half lotus designs. 150 CE.



- 16 Dwarf  
The figure is shown supporting a  
person whose right foot is all that  
remains 100 CE.





- 17 Cross bar with sculptured medallion Depicts the story of the presents of King Bandhuma 150 CE.



- 18 Pillar base  
Border of lotus creeper and bud



- 19 Pillar base  
Contains border of lions 150 CE.



- \*20 Fragment  
Shows worn out figures of lion, bull and man 200-250 CE



- 21 Casing slab (broken)  
The Buddha is shown under Bodhi tree.  
Below him are worshippers 200-250



- 22 Casing slab (broken)  
Depicts Mara's attack on the Bodhisattva.  
200-250 CE.



- \*23 Fragment  
Shows a haloed Buddha a flying Deva and  
a chauri bearer 200-250 CE.



- \*24 The Buddha  
The partly erased figure carved in a  
niche is shown standing on a full blown  
lotus 200-250 CE.





- 25 Pillar fragment  
Shows archaic lotus designs 100 BC



- \*26 Fragment of casing slab Shows part of pilaster on top of which are two recumbent winged lions placed back to back 200-250 CE.



- \*27 Fragment of casing slab Represents the Buddha's first sermon in the deer park 200-250 CE.



- 28 Fragment of frieze Shows a Dharma chakra rail pattern and a border of elephant and lion 200-250 CE.



\*29 Fragment

A seated karandamakuta wearing figure  
in the attitude of explaining 200-250 CE.



30 Casing slab (broken)

Buddha seated on a lion throne  
shown opposite the gateway of a miniature  
Stupa 200-250 CE.



31 Casing slab (broken) First Sermon in the  
Deer park 200-250 CE.



32 Casing slab (broken)

Partly preserved miniature stupa is  
seen 200-250 CE.





- 33 Casing slab  
Represents the story of Sujata feeding  
the Bodhisattva 200-250 CE.



- 34 Pillar fragment  
Has a border of lotus creeper designs 150 CE.



- 35 Fragment  
Contains figures of noblemen 200-250CE.



- 36 Head of a Bodhisattva 200-250 CE.



- 37 Fragment  
The lotuses and vase are done in archaic  
style 100 BC



- \*38 The Buddha  
Standing, his robe covers his entire body  
except the right shoulder 200-250 CE.



- \*39 Fragment



- \*40 Fragment





- \*41 Fragment



- \*42 Fragment  
Shows the top portion of a pilaster with spirited figures of lion and bull 150 CE.



- \*43 Fragment  
Flying devas carry the head dress of Siddhartha 200-250 CE.



- 44 Fragment  
Shows a *triratna* over a lotus which is supported by a rail. Below the rail are two half lotuses. The roof portion of a building with a chaitya window is also seen. 100 BC



- 45 Fragment  
On the right is a man with hands joined together riding a horse 100 BC



- \*46 Fragment (worn out)  
A stupa within an enclosure is shown.  
Women are entering through the gateways  
200- 250 CE.



- 47 Casing slab (broken)  
A miniature stupa is seen with lions  
guarding its gateways 200-250 CE.



- 48 Lower part of pillar  
Half lotus and a border of conventional  
*makara* and lion designs 150 CE.





- 49 Coping fragment  
*Ghoshakasetti Upatti* 150 CE.



- 50 Fragment  
Upper part of the left side of a  
Yakshi Salabhanjika is preserved.  
A bough of tree is seen behind her. 100 BC



- 51 Fragment



- 52 Coping fragment  
*MatangaJataka* 150 CE.



- 53 Coving fragment  
A human figure in the attitude of shooting  
an arrow and part of a tree are seen 150 CE.



- 54 Coving fragment  
Mahapaduma Jataka 150 CE.



- 55 Coving fragment  
Pillar surmounted by case and with a  
worshipper on either side is shown 150 CE.



- \*56 Coving fragment  
Rohini Khattivakanna 150 CE.





- 57 Coping fragment  
Unidentified sculpture 150 CE.



- 58 Coping fragment  
*Losaka Jataka* 150 CE.



- 59 Fragment of frieze  
The scene of *Rahula* asking Buddha for  
his inheritance 200- 250 CE.



- \*60 Part of frieze  
The story of *Maya's* dream and  
its interpretation 200-250 CE.



- 61 Fragment of frieze  
Rail patterns alternating with floral designs  
and trisula on the wheeled pair and  
a border of various animals 200-250 CE.



- 62 Fragment  
A Yakshi beside a tree shown within a  
Chaitya window 200-250 CE.



- 63 Coping fragment  
A large conventional flower garland is borne  
by yakshas. The central bight has the figure  
of a stupa 150 CE.



- 64 Coping fragment  
A large conventional flower garland is  
borne by yakshas. The central curve has  
the motif of worship of Dharmachakra  
on trisula. 150 CE.





- 65 Base portion of pillar  
Half lotus designs seen on either side. 150 CE.



- 66 Lower part of pillar  
Lions prancing towards an overflowing vase. 150 CE.



- 67 Lower part of pillar  
Half lotuses and dwarfs and the story of the conversion of Yasa. 150 CE.



- 68 Coping Fragment  
Garland drawn out by a dwarf 100 BC



- 69 Base portion of a pillar  
Motif of the worship of Buddha's feet above  
a half lotus 150 CE.



- 70 Fragment of pillar  
Border of winged lions on one side and  
border of animals on the other. 150 CE.



- 71 Base of pillar 150 CE.



- \*72 Coping fragment  
Garlands borne by two yakshas.  
Intersperse filled by representation of  
the worship of stupa. 150 CE.





- 73 Cross bar with lotus 150 CE.



- \*74 Fragment  
Part of a cluster of umbrellas is  
all that remains. 100 CE.



- \*75 Coping fragment  
Two yakshas thrust a flower garland into  
the mouth of a huge dwarf. 150 CE.



- \*76 Coping fragment  
Garland borne by running yakshas. 150 CE.



- \*77 Coping fragment  
Garlands are supported by dwarfs *100 BC*



- 78 Coping fragment  
Flower garland and yakshas. On the left the garland is being pulled out of a crocodile's mouth. *150 CE.*



- \*79 Coping fragment  
Shows a lady seated on the calyx of a lotus. *100 BC*



- 80 Fragment of coping  
Seated Dwarf pulling out a garland from his mouth. *150*





- 81 Cross bar  
Contains lotus designs 150 CE.



- 82 Fragment of casing slab  
Shows a part of *triratna* symbol. 100 BC



- \*83 Fragment  
Contains human figures. 100 BC



- \*84 Fragment of casing slab  
Rail pattern with *kudu* enclosing human head.  
100 BC



- 85 Pillar fragment  
150 CE.



- 86 Cross bar  
Contains lotus designs. 150 CE.



- 87 Cross bar  
Contains lotus designs. 150 CE.



- 88 Cross bar  
Contains lotus designs 150 CE.





- 89 Cross bar  
Contains lotus designs 150 CE.



- 90 Cross bar  
Contains lotus designs 150 CE.



- 91 Cross bar  
Contains lotus designs 150 CE.



- \*92 Lion  
Placed at the gateway of the *stupa*  
as if to guard it. One side is flat. 150 CE.



- 93 Coping fragment  
Story of King *Ajatasatru* visiting  
the Buddha 150 CE.



- 94 Coping fragment  
Story of King *Prasenadi* entertaining  
*Ananda* and other monks 150 CE.



- 95 Coping fragment  
Story of Prince *Mahapanada* (*SuruchiJataka*)  
150 CE.



- 96 Coping fragment  
Story of Prince *Mahapanada* (*SuruchiJataka*)  
150 CE.





- 97 Fragment of coping Usual garland supported by yaksha. 150 CE.



- \*98 Lion  
Placed at the gateway as if to guard it.  
Fully in the round. 150 CE.



- 99 Octagonal pillar below lion (no 98)  
Top of the pillar shows lotus designs,  
below, a rail pattern. 100 BC



- 100 Fragment  
Contains lotus designs 100 BC



- 101 Cross bar  
Contains lotus designs 150 CE.



- 102 Cross bar  
Contains lotus designs 150 CE.



- 103 Coping fragment  
Story of the messenger (Duta Jataka)  
150 CE.



- 104 Fragment of frieze  
Rosette designs above, rail pattern and  
lions running below 200- 250 CE.





- \*105 Frieze (broken to the right) Scenes from the life of the Buddha.  
200- 250 CE.



- \*106 Fragment  
Dryad. standing beneath a tree within a kudu and adorning herself with jewels 200- 250 CE.



- 107 Fragment of coping 200- 250 CE.



- 108 Fragment of coping 200- 250 CE.



- 109 Coping fragment  
Buildings, three human figures and  
tree. 150 CE.



- 110 Coping fragment (broken) Story of Sumana  
the gardener (Sumana Jataka) 150 CE.



- 111 Fragment of pillar  
Three panels of sculpture in between  
half lotus designs. 150 CE.



- 112 Fragment of pillar  
Scene of the Buddha preaching to  
his mother in heaven. 150 CE.





- \*113 Fragment of pillar  
 Story of the snake charmer and  
 his monkey (AhigundikaJataka) 150 CE.



- \*114 Fragment of frieze  
 A scene from the life of the Buddha.  
 200- 250 CE.



- 115 Frieze  
 Story of Vessantara, the gracious  
 prince (VessantaraJataka).  
 200- 250 CE.



- \*116 Fragment  
 Human figure in relief with heCE.  
 completely shaven. 200 250CE.



- \*117 Bit  
Contains lotus design 200-250 CE.



- \*118 Fragment  
Contains Buddha worship. 200-250 CE.



- \*119 Fragment  
A svastika and a portion of a trisula  
On wheel. 200-250 CE.



- \*120 Fragment  
Standing Buddha with a man on either side.  
200- 250 CE.





\*121 Slab

Contains outline drawing 200 250 CE.



122 Dharmachakra pillar The chakra on top is missing. 100 CE.



\*123 Coping fragment

Story of Vidhura, the wise one.  
(VidhurapanditaJataka). 150 CE.



\*124 Coping fragment

Story of Kavikumara (Kavikumaravadana).  
150 CE.



- \*125 Fragment of pillar  
Story of King Udayana and his queens.  
150 CE.



- \*126 Base portion of pillar Half lotus over,  
a border of makaras and lions 150 CE.



- \*127 Cross bar  
Contains lotus designs 150 CE.



- \*128 Cross bar  
Contains lotus designs 150 CE.





- \*129 Cross bar  
Contains lotus designs 150 CE.



- \*130 Pillar  
Story of the Buddha performing a miracle.  
150 CE.



- \*131 Cross bar  
Contains lotus designs 150 CE.



- \*132 Cross bar  
Story of the translocation of the begging  
bowl of the Buddha to the heaven. 150 CE.



- \*133 Cross bar  
Contains lotus designs. 150 CE.



- \*134 Coping fragment  
Some scenes from the life of the Buddha. 150 CE.



- \*135 Fragment of pillar  
Story of Mandhata, the universal Monarch.  
150 CE.



- 136 Fragment of plinth of railing  
Bull with a rope tied to its horn and a  
winged deer held by one of its hind  
legs by a man. 100 BC





- 137 Fragment of plinth of railing  
Winged lion held by one of  
its ears by a man. 100 BC



- 138 Fragment of plinth of railing Man holds  
the tail of a winged lion. 100 BC



- 139 Fragment of coping Half lotus,  
garland and dwarfs. 100 BC



- 140 Fragment  
Contains a pair of feet. 100 BC



- 141 Fragment of plinth of railing Man tucking  
at the tail of a lion. 100 BC



- 142 Fragment of coping  
Garland, dwarfs and half lotus. 100 BC



- 143 Fragment of plinth  
Parts of an elephant and a man are  
preserved. 100 BC



- 144 Fragment of plinth of railing  
Face of a griffin and man holding  
a bull by a rope. 100 BC



- 145 Fragment of plinth of railing with a bull  
100 BC.



- 146 Base portion of corner  
Pillar Worship of the throne.  
150 CE.



- \*147 Top portion of pillar Monkey  
offering honey to the Buddha.  
150 CE.



- 148 Cross bar  
Story of Saumanasa (SaumanasaJataka).  
150 CE.





- 149 Cross bar  
Story of the noble elephant,  
Chhadanta (ChhadantaJataka). 150 CE.



- 150 Cross bar  
Shows the stupa worship.  
150 CE.



- 151 Lower part of pillar Story of  
Udayana and his queens.  
150 CE.



- 152 Fragment of pillar(broken)  
Story of Bhuridatta (BhuridattaJataka).  
150 CE.



- 153 Coping fragment  
Scene of the great enlightenment.  
150 CE.



- 154 Coping fragment  
Unidentified sculpture. 150 CE.



- 155 Cross bar (broken)  
Some scenes from the life of the Buddha.  
150 CE.



- 156 Cross bar (broken)  
Story of Siddhodana's visit to Mayadevi  
in the Asoka grove. 150 CE.





- 157 Cross bar  
Story of the conversion of the  
Bhaddavaggiya youths. 150 CE.



- 158 Fragment of pillar  
Story of the peacock preaching  
the Dharma (Mora Jataka). 150 CE.



- \*159 Top portion of pillar  
Story of the descent of the  
Bodhisattva as a white elephant  
to be borne by Maya. 150 CE.



- 160 Coping fragment  
Story of the division of the  
Relics of the Buddha. 150 CE.





- 161 Carved pillar (broken) Creeper designs containing empty throne and its worship by two seated devotees.  
100 CE.



- 162 Small square pillar  
The stupa is plain with rail pattern at the top.  
200- 250 CE.



- \*163 Standing Buddha  
Hands and feet are broken but otherwise well preserved.  
200-250 CE.



- \*164 Standing Buddha  
Defaced and weathered.  
200-250 CE.



- 165 Fragment  
The Buddhapadas. 100 BC



- 166 Corner fragment  
Scene of Maya's labour pains on  
one side and a dwarf on the other.  
100 CE.



- 167 Fragment  
Feet of the Buddha with the wheel. 100 BC



- 168 Circular umbrella  
Was intended to go over the stupa.  
150 CE.



\*169 Slab

Feet of the Buddha with wheel.

100 BC



170 Fragment

Shows in the top panel the  
legs of two women. 100 BC



171 Pillar fragment 100 CE.



172 Pillar fragment 100 CE.





- 173 Octagonal pillar  
The front five sides are plain and  
the other three sides are inscribed.  
100 CE.



- 174 Pillar Shows simple stupa.  
200-250 CE.



- 175 Pillar fragment 150 CE.



- 176 Fragment of pillar 200-250CE.



- 177 Fragment of pillar  
Carvings of low relief on all four sides.  
100 CE.



- 178 Slab Huge pair of feet with different  
pattern. 100 BC



- 179 Fragment of small pillar  
Inscribed 200-250CE.



- \*180 Part of old railing  
The pillars and cross bars  
are in simple style. 100 CE.



- \*181 Large slab  
Show a man and a boy standing on  
a brick platform. 100 BC



- \*182 Casing slab  
Shows a serpent guarded stupa  
depicting the Ramagramastupa.  
200-250 CE.



- \*183 Casing slab  
Contains Purnaghata. 100 CE.



- 184 Casing slab  
Two panels separated by a border  
of running lions and deer. 100 CE.





- 185 Casing slab  
Contains stupa worship.  
100 CE.



- 186 Casing slab  
Seated Buddha preaching  
to the Nagaraja. 100 CE.



- 187 Casing slab  
Two panels separated by  
a border of lotuses. 100CE.



- 188 Casing slab  
Mara's attack on the Bodhisattva.  
100 CE.



- 189 Casing slab (broken) Worship of the stupa.  
100 CE.



- \*190 Casing slab with  
Purnaghata  
Decorated strip on the right. 100 CE.



- 191 Casing slab  
Contains Purnaghata. 100 CE.



- \*192 Fragment  
Departure of Siddhartha from Kapilavastu  
(Mahabhinishkramana). 100 CE.



- 193 Octagonal pillar  
It has bell capital over which is  
with riders placed back to back.  
100 BC



- 194 Pillar top 100 CE.



- 195 Pillar top 100 CE.



- 196 Pillar top 100 CE.





- 197 Casing slab  
Contains Purnaghata. 100 CE.



- 198 Casing slab  
Contains Purnaghata. 100 CE.



- 199 Casing slab  
Contains Purnaghata. Inscribed. 100 CE.



- 200 Casing slab  
Contains stupa. 100 CE.



- 201 Casing slab  
Contains stupa. 100 CE.



- 202 Casing slab  
Contains stupa. 100 CE.



- 203 Worship of the throne and the Bodhi tree  
100 CE.



- 204 Worship of the throne and the Bodhi  
Tree 100 CE.



- 205 Worship of the throne and the Bodhi tree  
100 CE.



- 206 Worship of the throne and the Bodhi tree  
100 CE.



- 207 Casing slab  
Contains Purnaghata. 100 CE.



- 208 Casing slab  
Contains Purnaghata. 100 CE.





- \*209 Slab (broken)  
King with his two consorts  
standing on a rail pattern. 100 CE.



- 210 Pillar top  
Is in two pieces. 100 CE.



- 211 Pillar top 100 CE.



- 212 Pillar top 100 CE.



- \*213 Devotee  
Over lifesize, broken in two,  
But pieced together. 100 BC



- 214 Dharmachakra pillar 200-250 CE.



- 215 Frieze  
Translocation of the begging bowl,  
a deva dancing with a tray on his head,  
a tree. 200-250 CE.



- \*216 Slab  
Dwarf dancing with left leg raised  
and right hand lifted. 100 CE.



- \*217 Fragment of casing slab Shows a pillar.  
100 CE.



- \*218 Fragment Contains foliage and  
geese on lotus. 200-250 CE.



- \*219 Large sized casing  
Slab Broken in three pieces,  
showing a five headed serpent. 100 CE.



- \*220 Dwarf Dances in ecstasy with the  
left leg completely folded up. 100 CE.





\*221 Casing slab

A typical stupa flanked by  
dharma chakra pillars and  
with a freeze on top. 200-250 CE.



\*222 Fragment

Scenes from the life of the Buddha  
such as the renunciation,  
the first sermon and the  
worship of the Buddha. 200-250 CE.



223 Fragment of the dharmachakra pillar  
200-250 CE.



- \*225 Stupa slab  
Worship of the Buddha.  
200- 250 CE.



- \*226 Frieze  
Two figures of the Buddha  
alternated by two stupas.  
200 -250 CE.



- \*227 Frieze  
Two figures of the Buddha alternated  
by two stupas. 200- 250 CE.



- 228 Fragment Contains lion. 200- 250 CE.



- 229 Stupa slab  
Cracked in the middle and  
badly mutilated. Shows a five headed  
serpent opposite the entrance of  
the miniature stupa. 200-250 CE.



- 230 Frieze with three Buddhas and three  
stupas Shows three Buddhas and  
three stupas. 200- 250 CE.



- 231 Fragment  
Shows a number of umbrellas as  
they would be over a stupa. 100 BC



- 232 Fragment of stupa slab Minute carvings  
represent some scenes in miniature.  
200-250 CE.





- \*233 Fragment Contains the Buddha and his disciples. 200-250 CE.



- \*234 Fragment of stupa slab 200-250 CE.



- 235 Mutilated stupa slab  
Shows the stupa. 200-250 CE.



- \*236 Frieze  
Contains three Buddhas and three stupas. 200-250 CE.



- \*237 Fragment of Dharmachakra pillar  
200-250 CE.



- 238 Frieze of the panels one depicts the  
story of Sarvamdada (SibiJataka).  
200- 250 CE.



- \*239 Frieze  
Two Buddha figures alternating  
three stupas. 200-250 CE.



- 240 Frieze  
Shows a rail pattern and two panels  
of sculpture. 200-250 CE.



- \*241 Fragment of stupa slab Shows a Stupa.  
200-250 CE.



- 242 Frieze  
Shows haloed Buddhas and stupas  
alternately, four of each. 200-250 CE.



- \*243 Fragment of casing slab Story of the  
Ramagramastupa. 200-250 CE.



- \*244 Fragment  
Story of the conversion of Nanda.  
200-250 CE.





- 245 Fragment  
Shows a building with railing  
and horse shoe shaped windows  
with thick walls. 100 CE.



- 246 Fragment with Buddha Worship  
Shows Buddha Worship. 150 CE.



- 247 Fragment of pillar  
The pillar is octagonal and Has three panels  
of sculpture on each face. 150 CE.



- 248 Fragment  
Shows the left side of a goddess  
seated on lotus and holding  
a lotus in her left hand.  
200-250 CE.



- 249 Fragment of casing slab Portions of three women and of a celestial being. 100 CE.



- \*250 Fragment of casing slab Shows portions of a building. 100 CE.



- 251 Fragment of casing slab  
Shows three lions and three trisulas.  
100 CE.



- 252 Fragment of casing slab  
A row of three lions over  
a border of four-petalled flowers.  
100 CE.



- 253 Casing slab (broken)  
The worship of empty throne under a  
Bodhi tree. 200-250 CE.



- 254 Fragment of casing slab  
Shows a man, woman and flying deva.  
100 CE.



- \*255 Fragment of pillar  
Depicts the four principle scenes  
from the life of the Buddha.  
200-250 CE.



- 256 Frieze  
Stupas and haloed Buddhas. 200-250 CE.





- 257 Fragment of cross bar  
On one side is a dwarf wearing a cross belt  
and turban, on the other side is a lotus.  
*100 CE.*



- \*258 Small fragment of  
frieze Shows a dwarf feeding  
a curious animal. *100 CE.*



- \*259 Fragment Shows a building with  
railing and horse shoe shaped windows.  
*100 CE.*



- \*260 Fragment of casing slab  
Shows Border of running animals and  
trisulas. *100 CE.*



- \*261 Fragment of casing slab  
Shows border  
of running animals and  
trisulas. 100 CE.



- \*262 Fragment  
Three nimbate Buddhas under  
the Bodhi tree each attended  
by a man. 200-250 CE.



- 263 Fragment of cross bar Depicts the  
story of Sarvamdada (SarvamdadaJataka).  
150 CE.



- \*264 Frieze  
Shows five Buddhas and five stupas.  
200-250 CE.



- \*265 Fragment  
Contains stupas and lotuses.  
200 250 CE.



- 266 Fragment  
Contains an adoring man.  
200 -250 CE.



- 268 Fragment  
Shows the Buddha amidst devotees.  
150 CE.





- 269 Cross bar  
Contains lotus designs. 150 CE.



- 270 Cross bar  
Contains lotus designs. 150 CE.



- 271 Cross bar  
Contains lotus designs. 150 CE.



- 272 Cross bar  
Contains lotus designs. 150 CE.



- 273 Cross bar  
Contains archaic lotus designs.  
*100 BC*



- 274 Fragment  
Contains a figure of a spirited man.  
*150 CE.*



- 275 Part of a pillar  
Lotus with a border foliage the  
curls of which enclose animals  
and birds. *150 CE.*



- \*276 Fragment of pillar  
Parts of elephant, bull and two men.  
*100 BC*



- \*277 Small fragment  
Shows a pillar top with figures  
of lions placed back to back. 100 CE.



- 278 Frieze on pillar  
The pillar is topped by two winged  
lions placed back to back.  
200-250 CE.



- \*279 Frieze  
Shows rail pattern and three  
Scenes and is inscribed.  
200- 250 CE.



- \*280 Fragment  
Contains the Buddha and stupa. 100 CE.

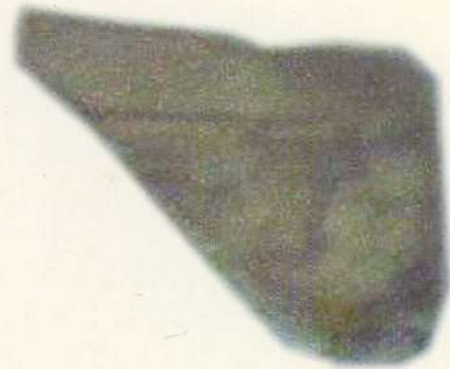




- 281 Fragment  
Depicts the story of the  
conversion of the Jatilas.  
100 CE.



- 282 Fragment with a bull 100 BC



- 283 Fragment of frieze with animals 100 BC



- 284 Fragment with vrikshacaitya  
The grand shrine around the  
Bodhi tree is built like a monastery. 100 BC



- 285 Frieze  
Depicts the story of the conversion of  
Nanda. 150 CE.



- 286 Fragment of pillar  
Depicts the story of the love smitten king  
(CullabodhiJataka).  
150 CE.



- 287 Fragment of pillar  
Represents the story of the  
departure of Siddhartha. 150 CE.



- \*288 Fragment of pillar  
Represents the story of Mara obstructing  
the feeding of the Pacceka Buddha  
(KhadirangaraJataka). 150 CE.



- \*289 Fragment  
Shows mutilated figures.  
150 CE.



- 290 Fragment of pillar  
The broken sculpture represents  
the story of the scene of music  
in the harem (Avarodhasangitaka).  
150 CE.



- 291 Fragment  
Shows a yakshi on pilaster.  
200-250 CE.



- 292 Fragment of cross bar Depicts the  
scene of the story of Vidhura  
(VidhurapanditaJataka). 150 CE.





- 293 Fragment  
Contains a lotus. 150 CE.



- 294 Fragment of pillar  
On the knob is a figure of the Buddha  
and some humans. 150 CE.



- 295 Fragment of pillar  
Shows king, minister and noblemen.  
150 CE.



- 296 Base portion of pillar Shows women  
in a harem. 150 CE.



- 297 Pillar fragment  
The worship of the Buddha.  
150 CE.



- 298 Fragment of casing slab  
Shows two men and a border of geese.  
100 BC



- 299 Coping fragment  
Flower garland supported  
by a strange looking dwarf.  
100 BC



Dr. George Bidie, the officer in-charge of the Madras Museum, chose to exhibit those sculptural pieces available with him embedded on the walls of the gallery which kindled controversy. The task of arranging these heavy and delicate sculptures in a hall too small for them was by no means an easy task. A senior engineer of the Public Works Department was placed on special duty for some months for this work.

Dr. Bidie has described the work as follows:-

*"The Amaravati Sculptures, the receipt of which was noticed in last year's report, were erected in the antiquity room and form very conspicuous and attractive additions to the museum. Most of the marbles received belonged to the outer rail of the tope, and an attempt was made to set them up in a position similar to that which they probably occupied in the original structure. This owing to their brittle nature, great weight and mutilated condition was a task of much difficulty and caused some anxiety, but all difficulties were successfully overcome by the care and skill of Lieutenant-Colonel Morant, R.E; who took very great interest in the work. Of the sculptures of the inner rail only one large stone and some fragments were received, and with such materialist was impossible to attempt the restoration of any part of the outer rail. Accordingly, the large sculpture was set up in a favourable position as to light in the wall of the room, and enclosed in a handsome teak frame which will permit of the carving being covered with glass should that at any time hereafter seem necessary. This specimen of the Buddhist sculptor's art is by far the finest and perhaps the most interesting of any hitherto recovered from the ruins of Amaravati. It measures 5 feet 6 inches and gives in bold relief a representation of the dagoba and its rails in their pristine glory, so that it is extremely valuable from an archaeological as well*



*as artistic point of view. Of the slabs which adorned the lower part of the dagoba itself only a few were received, and these were put up on a brick-work structure shaped so as to give some idea of their original position. The tope (a dome shaped shrine erected by Buddhist) of Amaravati was probably erected early in the 4<sup>th</sup> century of the Christian era, and some of the slabs have carvings on the back which show that they belonged to some structure of much older date. The finer sculptures now existing were evidently executed by artist from Northern India and show traces of classical interest. When Hioun Thsang, the Chinese pilgrim, visited the place in A.D.639, the tope still existed in its original splendour although it had been deserted for a considerable time. Its destruction must therefore have been begun at a later date, and for a long period it has been in a state of absolute ruin. The remains are now, however carefully guarded by Government and an interesting monograph on them by Dr. Burgess, C.I.E; of the Archaeological Survey has been published at the Government press”*

He built a single wall of Portland cement to simulate a part of structure of the **stupa** by embedding slabs in what might have been their original position on the **stupa** wall. Dr. Bidie's attempt to reconstruct the railings of the Amaravati was severely criticized by Dr. Burgess of the Archaeological Survey. The chief points of criticism were that the slabs have been wrongly placed, that it was wrong to use Portland cement and the alignment of the wall across the hall cut off light. Dr. Burgess, perhaps, thought that common sense in these matters was a prerogative of professional archaeologist! Dr. Bidie answered effectively but without heat that no one would be in a position to reconstruct the wall, because only a small percentage of slabs that originally made the stupa have survived destruction and reached the museum. So far as interference with light is

concerned, it is doubtful if any other alignment would have allowed so much light to fall on the sculptures. The Government of Madras fully concurred with Dr. Bidie and thus gave Dr. Burgess his due. It was of course wrong to build a large number of sculptures into the walls, below and also far above eye level, but Dr. Burgess did not bother about this point.

**Thus the Government Museum at Egmore (Madras Museum) hosts the "Amaravati Gallery"**

For the benefit of the visitors the **brief history** of the site and development of art is discussed further.

Amaravati occupies a pre-eminent position in the history of Indian Art. Beginning in 3rd Century BC the school of Amaravati Art unfolds its chapters through the sculptural wealth that once adorned the Mahachaitya, the monument of Buddhists situated in Amaravati with its history extending over a period of a millennium and a half.

#### **Origin of Chaitya:**

The *Mahasanghikas* probably first settled in *Amaravati* with an initial memorial stupa or Chaitya for their worship. There are three categories of Chaityas : *Dhatugarbha* (Containing the relics of the Buddha), *Paribojaka* ( With one of the associated objects of the Buddha) and *Uddesika*, a memorial. The Mahachaitya in Amaravati was a *Dhatugarbha* containing the relic of the master from a subsequent period.



### Historical comparison:

Amravati antiquity dates back to the time when man was in a primitive stage of existence. Stone Age tools such as hand axes, cleavers, discoid and scrapers have been discovered in the region. The recorded history of Amaravati begins from the time of Asoka, the famous Mauryan emperor who ruled from 272 to 235 B.C.E. The site has yielded a quartzite pillar bearing an inscription of Asoka. After the decline of the Mauryas, the later Satavahanas chose Dharanikota or Dhanyakataka near Amaravati as their capital. The Satavahanas were eventually replaced by the Ikshvaku rulers. At a much later date, the Pallava kings had their capital at Dharanikota before they migrated to Kanchipuram in Tamil Nadu.

### Chaitya and its Components:

The *stupa* at Amaravati is one of the biggest in South India. The ancient inscriptions refer to it as the Mahachaitya. It was originally mounted on a circular drum (medhi) of about 1.55 mts height and 49.30 mts diameter, the dome or the hemispherical super structure (anda) (42 mts. dia) crowned by a railed harmika and chatras were raised to a height of its diameter. Four platforms (7.20X2.10 mts each) called "ayakavedikas" projected out of the drum at the cardinal directions, a characteristic architectural feature of the Andhra *stupas*, each carrying five free standing ayaka pillars representing the five important events in the life of the Buddha viz., Birth, great renunciation, Enlightenment, First Sermon and Parinirvana. Built during the time of Asoka but was extensively enlarged and embellished by later rulers. The entire monument was covered with sculptured panels made of limestone or 'Palnad marble' found in the neighbourhood. The sculptures mostly portrayed scenes from Buddhist mythology.



### The Finding:

Nothing more than a small mound with a few stones around it has survived of the mighty Amaravati stupa which, when it was renovated and expanded in the Second Century CE., some five hundred years after it had originally been built in Asoka's time, the third century BC., was the grandest monument in the history of Buddhist world. The last inscription pertaining to the *stupa* belongs to the eleventh century CE., when a Simhavarman, who calls himself a Pallava, worshipped the *stupa*. But the great Amaresvara temple nearby contains inscriptions up to 1626 CE. When Mackenzie first went to Amaravati in 1797 CE., this temple was a renowned centre of Worship, as it continues to be, while Dharnikota was only a heap of mounds.

As for the remains of the *stupa*, a local Zamindar's men were quarrying for materials with which to build a town close by. The Zamindar was none other than Vasireddy Venkatadri Nayudu, the Raja of Chintappalli. The reason why this man wanted to change his residence was that due to famine in the area where he resided previously.

The Vasireddy family became prominent about 1710. "He inherited his royalty from his uncle Venkatadri in 1778. His palaces in Amaravati, Chebroulu and Chintapalli, his town house in Guntur, and his other residences reflected his prosperity. He hands out clothing and jewellery to village leaders at great feasts and on "auspicious occasions". "But the last decade of the eighteenth century was a time of travail for the district. A famine in 1791-92 carried away a sixth of the working population, in July, 1791, tidal waves devastated the coastal villages and a severe drought followed the next year. Vasireddy offered to pay two-thirds

of arrears of revenue which had been accumulating for seven years and a further sum of three and a half lakh pagodas if he was given sole charge of the district for three years. The council in Masulipatnam was disposed to accept his offer, but was swept away in the reforms of Lord Cornwallis, the Governor-General."

The British army disbanded his little army and quartered a battalion in his fort of Chintapalli. Vasireddy showed his resentment by way of abandoning the Fort and never to return back. He then resolved to build a new palace for himself and a new town for his people in Amravati. There were many mounds nearby, and inevitably his workmen were set to despoiling the biggest of them, which contained the relics of the *stupa*.

While admiring the town Vasireddy built, Col. Mackenzie wrote in "Asiatic Journal of 1823, "It is built with some degree of taste and regularity which bespeak the opulence and grandeur of the founder.... The streets and lanes of this beautiful town are laid out in straight lines, which run north and south, intersected at right angles by others extending east and west". The Palace was "a sumptuous edifice raised to three stories". There was a second palace too. Vasireddy was an ardent devotee of Amaresvara to which he made gifts. He stands before the lord in effigy to this day.

#### **Administration Report:**

**Dr. Gravely**, took charge as Superintendent, Government museum on 31<sup>st</sup> January 1920; in his *administration report for 1939-40* writes about Amaravati gallery as follows at the time of took leave of his staff on December 5, 1940:-

*"Since the opening of the archaeological gallery on the ground floor of*



*the new extension to the Museum by his Excellency the Governor on December 4, 1939, visitors have for the first time had put before them in a way that they can readily understand, a brief outline of the history as revealed by art, of the early empires of northern India, and of the principal empires and kingdoms of the south right up to modern times. Till this new gallery became available the exhibits in the archaeological section had all been arranged on iconographic lines. Now stone sculpture illustrates history, while bronzes continue to illustrate iconography. The recent addition of a large number of splendid examples of Hindu stone sculptures has enabled us to eliminate inferior ones, at last making the collection worthy of comparison with the collection of bronzes, while its beauty shows to much better advantage in its new setting. Sculpture of the early empires of northern India, without reference to which the sculpture of the south cannot be properly understood, was previously represented by Greco-Buddhist sculptures only, the school of least importance to the study of indigenous Indian sculpture. With the aid of the Director General of Archaeology in India and the Curator of Museums in the north, specimens and photographs have been acquired to illustrate the development of early indigenous sculpture from Mauryan to Gupta times, and we are now able to exhibit examples of Sunga, Graeco-Buddhist, Kushan and Gupta sculpture, Mauryan and northern Andhra being represented by photographs and southern Andhra by our fine collection from the **Amaravati** and other stupas of the Guntur and Karnataka districts. That this mode of illustrating Indian history by actual examples of work produced in different times and area meets a real need of the general public is evidenced by the care with which we see it being studied and the explanatory labels read- not of course by all or even by more than a comparatively small minority of the large*



*total number of daily visitors, but nevertheless by an appreciable number of them- while during the four months that the new gallery was open in the year under review 115 copies of the guide to the archaeological collections, first published on the opening day were sold.*

*During the preparation of the guide several interesting facts became apparent that seem to have escaped notice before. Thus it was seen that among inscribed casing slabs from the Amaravati stupa, dated by the script as being from about the end of the first century CE. and thus contemporaneous with the earliest representations of Buddha in bodily form in the indigenous sculpture of the north, though most bear symbolic representations of Buddha at the time of his enlightenment., first sermon or nirvana, two show him in bodily form, proving that the tendency towards showing him thus extended from Mathura (the modern Muttra) to Amaravati instead of being confined to the Mathura region as had commonly been supposed. Andhra sculpture of Amaravati, however, is more deeply imbued with religious feeling than is the contemporaneous Kushan sculpture of Mathura, a fact that is probably connected with the persistence in Andhra sculpture of preference for the symbolic to the bodily representation entirely. It also became clear that the southern or Dravidian form of temple almost certainly prevailed over the whole of South India (with the probable exception of Kerala) up to and including the Chalukyan kingdoms, while the northern or Indo-Aryan form used by the Imperial Guptas must have spread southwards from their empire with, but scarcely as far as, the spread of the influence of their art, reaching the Western Chalukyan kingdom at an early date and eventually uniting there with the southern form of temple to produce the form used by the Hoysalas of Mysore, but apparently not pertaining into the*

*Eastern Chalukyan kingdom, nor to the Tamil country beyond. The early mediaeval sculpture of the Tamil country seems, moreover, to have sprung from an surlier local art that had been strongly influenced by the Andhra art of Amaravati but not by the later and more developed, but more distant, art of the Guptas”.*

#### **LIME STONE IN GENERAL:**

Lime stone is the only natural resource and is the most abundant material on earth. In general, lime stones are about 100-500 million years old and were formed compressed layers of calcareous sea deposits.

Amravati stone sculptures were made of re-crystallised lime stone. These consist chiefly of Calcium Carbonate ( $\text{CaCO}_3$ ) with mineral calcite like small portions of silica, iron oxide, clay and carbonaceous matter. They are physically micro crystalline or coarsely crystalline, granular in appearance and are excellent for making sculptural work. Lime stone is generally buff and is the finest variety for grain uniformity of colour and texture and are generally softer than marble. Indian lime stones are buff and grey colours, fairly soft and easily worked and easy to carve.

#### **CHARACTERISTIC OF THE LIME STONE:**

Lime stones are made up with parts of the skeletons of sea animals. Lime stone usually consists of the same three general groups of materials such as sand stones, detritus particles, fine-grained matrix and cement all of which may be the mineral calcite. Lime stone on constant exposure and neglect, however, naturally lead to various causes of decay. It can be taken into account that no single



particular cause can be said to be responsible for gradual disintegration except neglect or natural disaster. The lime stone sculptures were embedded on the brick structures which are prone to salt action and deterioration by atmospheric pollutants. The moisture present in the air dissolves the acidic vapours and gases like oxides of carbon, sulphur, nitrogen etc. are indeed found harmful. These cause weathering in the form of hard crusts on the surface known as “**stone cancer**”. The salt absorbed smoke due to heavy traffic in that area has made ugly accretions. At this condition the human touch which has oil (palm grease) would spoil the surface of the sculpture. Soluble salt crystallisation causes characteristic pitting and powdering of surfaces. This is unsightly and destructive in any situation but is particularly problematic for masonry surfaces and for sculpture on buildings.

#### **AMARAVATI STATUS AT BRITISH MUSEUM:**

After they were photographed at Madras and published in the 1850s by Captain Linnaeus Tripe, great size and the enormous variety of wonderful sculptures were collected for the East India Company Museum (later India Museum) On Receipt of the Sculptures to the UK in 1860, they were placed variously by the East India Company Museum till the abolition of that institution. During 1880, it has been placed at the British Museum as final resting place until the beginning of the Second World War. With the coming of the Second World War in 1939, it was clear to all concerned that the Amaravati sculptures had to be dismounted and placed safely at out of harm's way in basements deep in the Museum.

Out of sight for the duration of war, the Amaravati sculptures remained



secluded for a further period until it were again remounted in an area of the Front Hall, just to the left of the old entrance to the famous Round Reading of the British Museum. During early 1950s, very unpleasant phenomenon such as dust-like fragments was noticed. To take immediate solution, the Research Laboratory was called by the Museum authorities to investigate the causes. At the same time, with consultation of the Madras colleagues the same conclusion was drawn. In simple terms, "certain salts in the body of the stone combine with moisture and sulphurous pollutants in the air to form larger crystals than are present in the composition of the stone itself. These crystals act to push off tiny particles off the surface of the stone". Further, by comparing with photographs taken by Captain Linnaeus, the conclusion was reached that "the surface quality of the sculptures are different from the condition in which originally found and then are certainly due to contact by the Amaravati stone with the atmosphere of London during the period 1860 to 1880, before they came to British Museum"

As a remedial measure the basement chamber dedicated to Amaravati marbles was constructed. The atmosphere of that room was conditioned by a complex air cleaning and drying process. All sulphur-bearing chemicals in the polluted ordinary air of urban London were removed and the air in the chamber dehumidified to a constant optimum level of 45%. In this condition the Amaravati collection at the British Museum remained for nearly fifty years, safe, seen by a handful of dedicated students, scholars and a few lucky private visitors, but entirely out of the eye of the general public.

The period of the 1950s to the early 1990s was a sad, rather lonely time for the Amaravati collection though the Department of Oriental Antiquities and

the Trustees of the Museum constantly expressed the desperate need to get these precious sculptures back on exhibition.

In 1989/90, plans for the complete refurbishment of the Oriental Gallery at the British Museum along with a total re-organisation of the Permanent display of the Museum's Indian and Chinese collections were started. With this great plan, a scheme to redevelop the West End of the Oriental Gallery for a permanent exhibition of Amaravati sculptures was developed in the name of *Asahi Shim bun Gallery of Amaravati sculptures*.

Amaravati room was air-conditioned to the standard.

- Provided huge glass screen separating the Amaravati room from the rest of the space to control the atmospheric terms.



Exhibited on the Screen Wall



- The walls of the gallery are covered not with paint or paper but with pure gold-leaf lending a unique splendour to a place containing some of the great artistic achievements of mankind.
- The *stupa* is reconstructed in schematic form.
- Some of the most important pieces such as railing, lintels and certain cross bars are set high up on the summits of the rail pillars themselves, making access to them less easy than if they were displayed individually at ground level.
- To prevent human touch with sculptures low bronze railings provide excellent protection for surfaces that can be kept beyond arm's length.
- Electronic alarm beam installed between object and visitors.

#### **REASON FOR REBURBISHMENT OF AMARAVATI GALLERY AT GOVERNMENT MUSEUM, CHENNAI:**

Amravati stone sculptures were exhibited by embedding them on the walls and some on the screen (Partition) walls. Most of the limestone sculptures were affected by salt action due to leakage and percolation of water. Seepage in the walls of the gallery was noticed during 1970. As an immediate action of preservation, the affected loose sculptures were immersed in distilled water for removing the salt accretions by paper pulp method and 2% solution of poly vinyl acetate in acetone applied as a preservative coat by the Chemical wing of the Museum. Since these sculptures are embedded on to the brick lime mortar walls of the gallery, in- situ preservation has not yielded desired results. An impression was created that the Amravati artefacts were deteriorating.





Mounting the second row of railing

## OBSERVATION OF CASE HISTORY:

Soluble salts are a principal agent of decay in porous building materials. The behaviour of salts may seem unpredictable since they can remain dormant for long

periods and then suddenly become active causing damage and disfiguring historic fabric. The damaging effects of soluble salts are intimately linked with wetting and drying cycles at the masonry face. Almost all historic building materials are porous to some degree. The network of pores in stones and bricks contain water in which varying quantities and types of salts may be dissolved. As drying /evaporation occurs at the masonry face salts crystallise out of solution producing the white crystals known as efflorescence.

## UNIQUE PROBLEMS ORIENTED:

While examining the reasons, the salt absorbed from the wall has begun to damage the



Translocation of Buddha's begging bowl



relics. The absorption has happened because of rising water level during the monsoon, a result of faulty road laying policy. The correct method is the old layers are scraped and then the new one laid so that the road level remains unchanged. Due to this, the outer boundary area of Pantheon road is very much raised for relaying of Bitumen road layer by layer for several times without removing the existing damaged/worn out layers during last decades. Thus the flow of water to the Cooum River was blocked. As an effect, settlement has taken place in some buildings. Water logging in low lying areas created percolation of water in to the core as well as foundation. As an effect, soluble salt movements started through mortars and lime sculptures. Sodium sulphate solution rises through the sculptures by capillary action and salt crystals form as drying occurs. Repeating the cycles of wetting and drying quickly causes surface break down.

#### **PRESERVING THE PAST FOR THE FUTURE:**

The Secretary to Government, Department of Culture set up a committee in 1997 comprising the following experts to study the problem of the Amaravati Sculptures and to suggest the restoration measures.



View of railing

- Dr. Tej Singh, National Research Laboratory for Conservation of Cultural property.

- Dr. R.K. Sharma, Director (Science), Archaeological Survey of India, Dehradun
- Dr.R.Nagasamy, Former Director of Archaeology, TNSDA.
- Dr. B. Narasimiah, Former Superintending archaeologist, Archaeological Survey of India.

#### COMMITTEE'S REPORT:

- Recommended for the Establishment of the New Amaravati Gallery.
- Removal of embedded sculptures from the walls of the gallery.
- Conservation from further crystallisation of salts
- R e - displaying in the properly designed gallery with all modern display equipment for increasing the life of the Amaravati lime stone objects.



Supervision of Work

In 1989-90,

Government of Tamil Nadu sanctioned a sum of Rs 8.00 Lakhs for air-conditioning the gallery. Due to administrative reason, the project was shelved.





Inspection the work by Dr. T. S. Sridhar, IAS.,

## PROJECT:

Problem was again studied departmentally about the conservation of the Amaravati lime stone sculptures in Government Museum at the British Museum. Based on the studies, the project of Rs 169.00

Lakhs for the establishment of a Buddhist Centre in the government Museum, Chennai in the model of stupa with financial Assistance from Government of Japan was placed through Government of India. The project involves activities such as planning and designing, preparing the sketches, calling tenders for removal of embedded sculptures from the walls and conservation treatment, erection of new "I" beam type pillars, Installation of new lighting facilities, Provision of AC facilities, Improving the flooring, Providing anti termite treatment, pavement drain to avoid water stagnation around the building, display work etc. This is on the model of the Amaravati Gallery in the British Museum called the "Asahi Shim bun Gallery of Buddhist Art".



Setting in order during work

## **SEMINARS AND GAINS KNOWLEDGE:**

The Nehru Trust for the Indian Collections at the Victoria and Albert museums was interested in arranging the experts from London, an “International Seminar on observation of Stone Objects with reference to the Lime Stone Objects” was organised by the Government Museum, Chennai in its 150 years of its existence in collaboration with the Indian Association for the study of the Conservation of Cultural Property, New Delhi and the Nehru Trust for the Indian Collections at the Victoria and Albert Museum., London of New Delhi in December 2001. It helped to formulate the strategy for conservation of the Amaravati Lime stone sculptures in the Museum.

Another seminar on “Conservation of stone Objects” held at the IIT, Chennai organised by the German Max Muller Bhavan in which the methods of Conservation of Stone objects like granite sculptures and delicate limestone sculptures. A paper also presented by Dr. R. Kannan, IAS., the then Commissioner of Archaeology about the use of Power Tools in conservation.

## **TRAINING:**

The Curators of Chemical conservation and Research Laboratory and the Archaeology Gallery of Government Museum have visited the Amaravati lime stone sculptures in the British Museum, London to gain knowledge for conservation and display of the Amaravati lime stone sculptures in the Government Museum, Chennai.



## PILOT PROJECT:

Based on the recommendations of the Committee as an experimental manner, the identified 116 sculptures that have deteriorated have been removed with the help



Restoration of the existing wall

of the Power Tools (Drill and Chipper) within three months without any damage with the help of the Archaeology Department's Conservation Section Staff on the advice of Dr. R.Kannan, IAS; the then Commissioner of Museums. The work was photo documented since some of the artefacts that were broken even in the 19<sup>th</sup> Century CE, when fixed to the walls but the pieces were pasted together with lime mortar at the time of their original installation, was brought to the light. Nearly 116 sculptures were removed from the Amravati Gallery by the Engineers of the



Lifting arrangements made

Archaeology Department, which were badly affected. All precautions were taken and the void in the walls were filled with suitable bricks and filled with combination mortar to match the environment through the Public Works Department. Removed



sculptures were placed carefully on foam cushion to avoid physical damage by adopting the archaeological principles.

#### CONSERVATION TREATMENT:

The lime stone sculptures are found with dissolved salts as they are found embedded on to the walls. The inward of water carrying dissolved salts are main reason for the salt action. Oil accretions at low level embedded sculptures are the vandalism of visitors.



Mounting the suci in the railing

#### Oil Removal:-



Mounting the suci in the railing

The oily accretions formed on the surface of the lime stone sculptures were treated with 2% Labolene and 5% Ammonia solutions. It was followed by through washing with good water.

### **Salt Removal:-**

The dissolved salts formed due to embedded on the walls were removed by dissolution or by poultice using neutral paper pulp method with distilled water.

### **Documentation:**

The work done in the museum regarding the removal of artefacts has been documented and published in the October 2001-March 2002 Journal.

### **SCHEME:**

On 2<sup>nd</sup> July 2003, the Hon'ble Union Minister for Culture, Thiru Jagmohan visited the Museum, look at the heritage buildings where conservation works are in progress by the ASI under a joint Central-State Project in the museum complex. In consequence of Minister's visit, an action plan proposal under the scheme of **"Promotion and strengthening of Regional and Local museums"** was furnished to the Government of India, Ministry of Tourism and Culture, Department of Culture to a tune of Rs 62.50 Lakhs of which central share is Rs 50.00 Lakhs & State share is Rs 12.50 Lakhs during 2004-05. Government of India has approved central share of Rs 50.00 Lakhs and released 75% payment of the sanctioned amount. State Government had released its matching grant of Rs. 12,50,000/-.

Subsequently, Government of Tamil Nadu issued the administrative sanction by allocating the fund of Rs 62.50 Lakhs during 2005-06 in G.O.Ms No 72 Tamil Development Culture and Religious (MA1) dated 3.5.2005. The Director of Museums has requested the Government to constitute a Technical Committee to obtain technical advice from prominent archaeological experts while executing works. The State Government had issued a G.O. Ms No 56 Tamil Development



Culture and Religious (MA1) dated 14.2.2006 constituting a committee comprising of

1. Commissioner of Museums .....Chairman
2. Thiru. R. Balasubramanian ..... Coordinator  
Curator, Government Museum, Chennai-8
3. Dr. T. Satyamurti .....Member  
Superintending Archaeologist  
Archaeological Survey of India, Chennai
4. Thiru. K. T. Narasimhan .....Member  
Superintending Archaeologist  
Archaeological Survey of India, Chennai
5. Dr.V.N.Srinivasa Desikan ..... Member  
Retired Assistant Director of Museums
6. Thiru Chellappillai Asst. Superintending Archaeological Engineer  
(Rtd) Archaeological Survey of India, Chennai. ....Member
7. Thiru R.Narayanan ..... Member  
Junior Engineer (Spl. Grade) Monument  
Department of Archaeology, Chennai.

Based on the above sanction of Rs 62.50 Lakhs, Government of Tamil Nadu permitted to execute the removal of world class lime stone sculptures from the wall departmentally by using Rs5.00 Lakhs for the preliminary work and payment for the labour execution part in G.O.Ms No 253 Tamil Development and Culture and Religious Department dated 28.10.2006.

**The First meeting of the “Committee on Refurbishing the Amaravati Gallery” was held on 27<sup>th</sup> February, 2006** at the Director's Chamber under the Chairmanship of the then Director of Museums, Thiru M.A. Siddique, I.A.S., in which the Commissioner of Archaeology Dr.T.S.Sridhar, I.A.S., participated .

The following decisions were taken:

1. **Documentation of existing Sculptures:** The committee stressed



# AMARAVATI REFURBISHING COMMITTEE MEETING 6-04-2009.

Dr.T.S. SRIDHAR, I.A.S., COMMISSIONER OF MUSEUMS CONDUCTED THE MEETING AND VISITED AMARAVATI GALLERY WITH MEMBERS





the importance of photographic documentation of the existing sculptures to record the present state of sculptures. The Curator informed that the photography of the sculptures had already been done.



Mounting the suci in the railing

**2. Removal and Cleaning of Sculptures:** The first task in reorganization is to carefully remove the sculptures embedded in the walls of the gallery, and take up cleaning and conservation of the sculptures before they are ready for installation. The committee recommended that one or two pieces lotus medallions may be first cleaned and then after seeing the results, cleaning and conservation work may be

extended to other pieces.



Mounting the suci in the railing

The committee visited the storage and expressed their satisfaction. Thereafter 110 objects were carefully dismantled and kept in safe storage with the help of Engineers of the Department of Archaeology.



3. The Committee opined that service of a reputed architect should be procured to design the layout of the proposed gallery. The Curator was asked to enumerate and categorize the sculptures so that grouping of sculptures for the layout can be finalized.



Mounting the suci in the railing

4. A model of the Amaravati *stupa* should be prepared that may be kept in the centre of the proposed gallery.

5. The roof of the gallery should be repaired to ensure that there are no leakages from the roof during rains.

**The Second Technical committee meeting was held on 10.10.2006 at the Commissioner's Chamber and discussed the following and decision taken:**

1. An architect should be identified for designing and reconstructing the Amaravati Gallery.
2. Architect may be selected by following the method adopted by the Archaeological Survey of India, for the Fort Museum, ASI (for pre Qualifications etc.,)
3. AE (Civil), PWD to remove the remaining embedded and othe sculptures under the supervision of the Curator Archaeology.
4. As soon as the artefacts are removed from the Gallery, the AE (Civil) should take up condition the entire area refilling the voids usin suitable materials in accordance with archaeological principles.
5. The Committee will meet after the removal of artefacts.
6. Special bricks of the same dimensions as suggested by Thiru.



K.T.Narasimhan may be procured to fill up the voids created in the Walls.

7. The work of selecting the architect for designing the gallery will be taken\ Up at The next meeting of the Committee.

**The Third Technical Committee meeting for the Reorganisation of the Amaravati Gallery was held on 18.01.2007 at the chambers of the Commissioner**

and resolved unanimously to hand over the Amaravati Project to PWD Civil under the supervision of the Committee. Pre qualifications may be quoted to avoid unskilled bidders.



#### Proceedings

Principal Secretary and Commissioner Dr.T.S.Sridhar,I.A.S.,  
inspecting the mounting of suci in the railing portion

were issued on 5.02.2007 to PWD to proceed with the works. Since time was short the fund was surrendered by PWD with the assurance that they will start the works early in 2008-09. The Executive Engineer Thiru Mohanrajan along with AE (Civil) Thiru Selvakumar and Work Inspector Thiru. Ravi and Curator for Archaeology Section Thiru R.Balasubramanian and Assistant Photographer Thiru G.Ramesh went to Amaravati to study how the objects were displayed and the type of materials used for showcases. Based on the experience of Archaeological Survey of India site Museum at Amaravati estimates were prepared. Tender procedures were followed carefully and a bidder was selected by the PWD. M/s Modern Engineering, Chennai have taken the work and the dismantling works started in



August 2008 after the receipt of the funds. All the embedded sculptures were carefully removed one by one and kept on foam. The removal works were completed in November as the PWD have to complete the works in all respects before the end of the financial year i.e., March 2009.

As it is a specialized nature of work, the mounting of exhibits for the railing portion alone started. Before starting this work all the voids in the walls have been closed with suitable bricks and combination mortar. A pit was dug for about 5 feet and it was chemically treated. Then concrete filling was done up to 2 feet height. All the sides were treated and a surrounding wall was built with concrete. At this stage Dr.T.S.Sridhar, I.A.S., took over as Principal Secretary and Commissioner of Museums. He suggested to call the Committee meeting and inspected the Gallery and asked Thiru. R. Narayanan Assistant Executive Engineer (M) Department of Archaeology to prepare the Plan by identifying the sculptures with consultation of the Curator, Museum. Thiru. M.Arun, Sthapathy of the Archaeology Department has been asked to prepare the plan in detail. After getting oral approval of the plan from the Principal Secretary and Commissioner, the Curator has been asked to show the prepared plan to Thiru K.T.Narasimhan for his opinion. After scrutinizing the same it has been pointed out that instead of two Buddha sculptures two Purnakumbhas may be displayed and also suggested that that the Buddha figures may be displayed behind the Purnakumbhas. With these suggestions he also added that the back of the wall panels a sheet of poly carbonate may be added to prevent moisture accumulating in future.

Similarly, Dr. V.N. Srinivasa Desikan suggested that the model of Mathura Buddha may be removed from the gallery since it is not original. All other artefacts displayed are originals.



While approaching Dr. T.Sattyamurti, Retd., Superintending, Archaeologist has suggested since the refurbishing of gallery forming with the Government of India Funds, the label may be in Trilingual. (Hindi version of labels may attract the North Indian Visitors)

**The Fourth Technical Committee meeting was held 6.4.2009 under the chairmanship of Dr.T.S.Sridhar, I.A.S.** After the preliminary discussion, the team members inspected the gallery site to verify the on-going civil works and the following points/ suggestions are made by the committee.

The members suggested some improvements to go about the work. The Principal Secretary and Commissioner found a solution to go about and often and on gave moral support in taking up the works whenever there was difficulty. After careful study it was decided to put the Stone slabs in. It took a full week to mount one sculpture as they were heavy stones they have to be mounted carefully with full support. Archaeological principles were strictly followed. The lower portions of the heavy stones were covered with Japanese tissue paper and over those plastic sheets were tied so that they will not have any contact with building materials directly as it would be detrimental otherwise. Then the pit was covered with concrete to carry weight of the members after giving termite treatment. All these works were done between January and March 2009 under the careful supervision of the Curator. Manual labourers engaged to carry the materials. No machinery was available. The committee members visited the gallery to see the works carried out so far. Then members visited the gallery and suggested improvement which was then and there completed. They also scrutinized the plan and made suggestion for improvement of the layout. The plan was approved by the Committee members after due modifications. Then the members gave the following suggestions to the Curator.

Termites found on the flooring was shown to the PWD Engineers and informed that the entire flooring are to be treated with anti-termite by providing pipes alternatively for injecting in future if required and not part by part as doing now.

By showing the plan, the railing work made as straight against inverted 15 degree curve was objected by the committee and further stated that the rectification to be made before proceeding further.

The drum provided should be placed with space for getting relief on both sides.

The displayed sculptures are to be planned to provide balanced symmetrically.

Finally, the committee again returned to the meeting hall and confirmed the decision taken as follows:-

Identify the sculptures which are to be displayed on getting list of sculptures from the Curator of Amaravati Gallery.

- Thereafter the selected sculptures have to be cleaned with distilled water. Cleaning items are to be purchased for the treatment. Cleaning to be made over the base of the rubber sheet. At this point it was also suggested that the selected sculptures may be cleaned using 2% ammonia and clean water. Thiru Ashok Dheen, Chemist, Department of Archaeology and Ms. Gandhimathi, Curator-in-charge of Chemical Conservation Section of the Museum to Coordinate the work.



- List of objects have to be got approved by Committee members by circulation.
  - Un-breakable fibre glass to be used for doors.
  - Trolley to be arranged by the PWD for the movement of the sculpture.
  - The correction to railing may be carried out in the meantime.
  - As suggested by the Principal Secretary and Commissioner, a copy of the "Guide to Buddhist Antiquities A.Ayyappan and P.R. Srinivasan" were procured and given to the members.
  - All the related objects from other sites may also be displayed.
  - Jataka stories to be studied before displaying the objects.
  - Off white flooring may be done.
  - The members suggested that all selected objects may be done in-situ.
  - Next meeting will be conducted by the end of April 2009 / early May 2009
- Rs. 28lakhs has been incurred so far and the balance funds surrendered.

After getting the opinion of the committee further works started again in April 2009. All the removed sculptures were carefully kept on foam bed and in a building specially built for storing the surplus sculptures. The second and third row of sculptures were mounted carefully and the difficulty was felt by now in mounting the coping stones as there was no work space for workforce to sit atop and install the coping stones.

**The Fifth Technical Committee meeting was held 7.8.2009 under the chairmanship of Dr.T.S.Sridhar, I.A.S. The Executive Engineer, Public Works Department attended this meeting as special guest.**

The following points were discussed. The problem felt by the Curator in putting the coping stone at the top of the railing portion.

### **The fragments identified to be displayed in the wall show cases**

The Curator identified the fragment sculptures to be displayed in the wall panels and the list prepared was shown to the members. The Chair and members visited the gallery and saw the railing portion so far completed and took measurements of the coping stones to be placed at the top.

A work-flow statement (PERT CHART) indicating likely time frame and deadlines was prepared in consultation with the Assistant Executive Engineer, PWD as follows:-

Lotus medallion	- 8 Nos. 10.8.2009 to 16.8.2009
Top beam	- 1 No. 17.8.2009 to 23.8.2009
Top suci (top most)	- 5 Nos. 25.8.2009 to 31.8.2009
Wall panelling Objects	- 70 Nos. 17.8.2009 to 7.9.2009
Floor mounted Objects	- 40 Nos. 1.9.2009 to 25.9.2009
Final Flooring and finishing	- 26.9.2009 to 15.10.2009

The expert committee was approached for suggestions and members asked us to use direct poles and chain pulley. We had approached several agencies to get a small fork lifter equipment to do the job. But even the smallest of the equipment could not move inside the gallery as the equipment was bigger in size than the entrance to the gallery. Finally as suggested by the committee, direct poles and chain pulley were commissioned to take up the work. As suggested the labourers, who were casual labours of ASI were commissioned from Karnataka to mount the suci sculptures, as they were the experts in this line of works. It took one full week to mount these sculptures atop by the end of October 2009. It was a time consuming work. Total height of the panel is 14 feet.



All the selected Jataka stories were carefully mounted on showcases. After these works the floor was laid with marble slabs. It took five weeks to complete this work. All the sculptures exhibited in the gallery were well treated using conservation norms.

All showcases were covered with glass panes after keeping the visitors can enjoy the sculptures and without touching them. It was suggested to put false ceiling so that the visitors may have a pleasing experience in viewing the gallery. Accordingly, false roofing was completed. To suit the ambience labels were prepared in golden colour screen printing and were placed. As part of the refurbishment fresh electrification and air-conditioning was carried out for the first time and the new electrical lines were designed to bear the load and the pure white metal haloids lights were used so that the gallery have uniform lighting. Tube lights and tungsten lights were used to light the gallery before the refurbishment.

Some of the Buddhist sculptures of Amaravati betray a Greco-Roman influence that was the direct result of the close trade and diplomatic contacts between South India and the ancient Romans. Thus the rare and priceless collection of the country was conserved with all possible measures and stands as testimony, as advised by the administrators from time to time, who saved for posterity the deteriorating *Amaravati lime stone treasures* of the Museum effectively so as to re-create the ambience of Amaravati, on the lines of the British Museum gallery and catch glimpses of a glorious era in history.

## BIBLIOGRAPHY

- 1) Amaravati, Andhra Pradesh from "Wikipedia", the free encyclopaedia
- 2) Aiyappan, A and Srinivasan, P.R. - Guide to the Buddhist Antiquities - 2007
- 3) Balasubramanian, R Stone Sculptures of Government Museum- 2009
- 4) Catherine Woolfitt "Soluble Salts in Masonry" An Article
- 5) Dr.Kannan, R. Conservation of the Sculptures of the Amaravati gallery in "Manual on conservation of Monuments" - 2007
- 5) Jeyaraj, V. And Balasubramanian, R. - Amaravati Sculptures and their problems of Preservation in Special volume on "Conservation of Stone Objects" - 2003
- 6) Dr. V. Jeyaraj-Special volume on Conservation of Stone Objects- 2003
- 7) Madras Government Museum "Centenary Souvenir" (1851-1951) - 1999
- 8) Minutes of the Technical Meeting
- 9) R. Narayanan - Conservation of Stone Monuments Dissertation submitted for the 29th Refresher Course on Care of Museum Objects Government Museum (unpublished)
- 10) October 2001-March 2002 Government Museum Journal.
- 11) Robert Knox Amaravati at the British Museum - 1992
- 12) Sangeetha Bais Why use Lime
- 13) Sivaramamurthi, C. - Amaravati Sculptures in the Chennai Government Museum, "Bulletin of the Government Museum, New series, General section, Vol.IV"-1998



## GLOSSARY

**Ayaka pillar....** Pillars erected on the projected platforms at the four cardinal points of the stupas of Andhra Pradesh.

**Bodhisattva....** The person who, at a certain future time, is destined to get enlightenment.

**Casing slab.....** A rectangular slab used to line the exterior of stupa. It is sculptured on the outside.

**Coping....** The crowning member of the railing usually rounded at the top and sculptured on both sides, more profusely on the inner side.

**Calcite.....** The mineral form of calcium carbonate is having rhombohedra structure. This is the form which gives strength to a well-carbonated lime mortar. It occurs naturally as Iceland spar and has a unique double refraction of light which may be the reason for the exceptional appearance of lime washed surfaces.

**Calcium carbonate.....**  $\text{CaCO}_3$  is the material from which lime is prepared. Natural forms are lime stones, chalks, shells and corals.

**Clay....** the smallest particles produced by the weathering of rocks; each particle is less than two microns across. Chemically, clay particles are hydrated alumina-silicates, and physically they are usually in the form of thin plates which stack together.

**Jataka....** Story of events in any of the several previous lives of the Buddha. There are about 550 stories of this kind which are called collectively by the name of Jataka.

**Kudu.....** A design shaped like a horseshoe used as a decorative element in temple architecture. It served the purpose of a window in ancient Indian dwellings.

**Sûci.....** Coping fragment.

**Stûpa....**Originally a funerary mound with a simple railing of wood which are later developed into large monuments to preserve relics. Sometimes stûpas were also commemorative.

**Triratna.....** One of the several symbols of Buddhism, in the form of a trident representing the Buddhist trinity, the Buddha, the Dharma (the Law) and the Sangha (the Order)





