

M U S E O L O G Y



Heritage Management

Dr. V. Jeyaraj



Museology

HERITAGE MANAGEMENT

Dr. V. JEYARAJ
Curator

Chemical Conservation and Research Laboratory,
Government Museum, Chennai - 600 008.

New Series - General Section - Museology - No.1/2005

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First Edition 2005

©

Director of Museums
Government of Tamilnadu

Price : **Rs. 200/-**

Printed by

Seawaves Printers

No.5, Chockalingam Nagar Main Road,

V. Teynampet, Chennai - 600 086.

Ph : 044-2432 7060, 2434 7060

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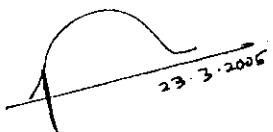
FOREWORD

Museums are portraying and preserving the culture, science, nature etc., of our country to the present and future in various ways. There are over 700 museums in our country. The vast art, cultural, natural and scientific heritage along with the intangible part of them are finding places in the museums or in the open-air museums. Depending upon the type of collections, the museums are called in different names. Modern trends of museum practices have crept into the field of Museology. It is the duty of the museums to adopt the modern technology and principles to attract the visitors. Museums must have successful programmes in order to sustain their activities. There are various amusement institutions like Disney Lands, Entertaining Science Parks, Theme Parks, Beach Resorts to attract the public. Museum personnel have a great responsibility of alluring the public with the priceless antiquities with them to give edutainment to the public. Marketing has become a very important aspect of a museum Curator. He should be professionally sound to endure well. First hand information on the current museological and museographical practices is a must for them. Government Museum, Chennai is a multipurpose museum catering to the needs of the public and institutions in this vast country. Its pioneering activities have contributed a lot to the growth of preservation of our heritage for posterity. Its publications are also known through out the world.

Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory of the Government Museum, Chennai has vast experience as Curator over 27 years in different museums in Tamilnadu, as head of offices in the district museums and as a Conservator in the Chemical Conservation and Research Laboratory, Government Museum, Chennai. His contribution to the field of conservation is well known. He has blended his experience in the field of Museology and Conservation in India, U.K., Germany, France and Australia and brought out this publication.

The Department of Museums, Government of Tamilnadu is publishing this book written by Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory of the Government Museum, Chennai with a fond hope that this book would serve as an essential source book for museologists and all those with interest in heritage management.

Chennai-600 008,
23-3-2005.


(M.A. Siddique)

CONTENTS

CHAPTER I	
INTRODUCTION TO MUSEOLOGY	1
CHAPTER II	
MUSEUM ARCHITECTURE	10
CHAPTER III	
MUSEUM BUILDINGS	21
1. Main Requirements	
2. Planning the Public Area	
2. Planning the Technical Area	
CHAPTER IV	
KINDS OF MUSEUMS	34
CHAPTER V	
MUSEUM'S FUNCTIONS	46
Basic Functions	
1. Identification	
2. Survey Questionnaire and Field Notes	
3. Techniques of Identification and Documentation	
4. Dating of Antiquities	
5. Documentation	
6. Registers and Records	
7. Collection Management Policy	
8. Insurance	
9. Exhibition	
10. Museum Presentation	
11. Signage	
12. Museum Lighting	

CHAPTER VI	103
SECURITY	103
i. Informative Properties	
ii. Internal Security	
iii. External Security	
iv. Fire Safety	
CHAPTER VII	
STORAGE	117
1. Storage Requirements	
2. Storage Materials	
3. Protection within the Storage	
4. Visual Storage	
CHAPTER VIII	
MUSEUM ADMINISTRATION	129
1. Staff	
2. Personnel Management	
3. Financial Management	
4. E-Governance	
CHAPTER IX	
MUSEUM EDUCATION	146
1. Services to Students	
2. Services to Teachers	
3. Services to the Public	
CHAPTER X	
MUSEUM RESEARCH	158
1. Research by the Staff	
2. Research by the Scholars	

CHAPTER XI	
MUSEUM PUBLICATION	163
1. Research on Earlier Publications	
3. Publishing the Scholarly Work of Other Scholars	
CHAPTER XII	
PUBLIC RELATIONS	170
1. Relation with the Public	
2. Relation with Other Institutions	
3. Relation with the Press	
CHAPTER XIII	
MUSEUM STUDIES	176
1. Museum Studies in the Global Context	
2. History of Museum Studies in India	
3. Universities on Museum Studies	
4. Awareness Training Programmes	
4. Research Programmes	
CHAPTER XIV	
CONSERVATION	184
1. Introduction	
2. Conservation	
3. Preventive Conservation	
4. Curative Conservation	
5. Restoration	
6. Classification of Museum Objects	
7. Aggressors of Museum Objects	
8. Treatment of Metallic Objects	
9. Treatment of Inorganic Objects	
10. Treatment of Organic Objects	

CHAPTER XV	
STUDY OF SELECT MUSEUMS IN INDIA	211
1. Chatrapathi Sivaji Museum, Mumbai	
2. National Museum, New Delhi	
3. Government Museum, Chennai	
4. Visvesvaraya Industrial and Technological Museum, Bangalore	
5. Periyar Science and Technology Centre, Chennai	
6. Salar Jung Museum, Hyderabad	
7. Indian Museum, Kolkata	
8. Victoria Memorial Hall, Kolkata	
9. Nehru Childrens' Museum, Kolkata	
10. Government Museum, Mathura	
11. State Museum, Lucknow	
12. Government Museum and Picture Gallery, Chandigarh	
13. Manipur State Museum, Imphal	
14. Museum of Mankind, Bhopal	
15. The Raja Dinkar Kelkar Museum, Pune	
16. Government Museum and Picuture Gallery, Baroda	
CHAPTER XVI	
MUSEUM RELATED ORGANISATIONS-INTERNATIONAL& INDIAN	237
International Organisations	
Indian Organisations	
CHAPTER XVII	
PARA MUSEUMS	259
Museum Society	
Friends of the Museum	
Museum Lovers Club	
Cultural Forum	
Museum Trust	

CHAPTER XVIII	
LEGISLATIVE MEASURES	262
Global Legislative Measures	
Indian Laws Regarding Antiquities	
Intellectual Property Rights	
CHAPTER XIX	
PACKING AND TRANSPORTATION	269
Packing Materials	
Packing Systems	
Transportation of Museum Objects	
CHAPTER XX	
MUSEUM LIBRARY	273
Scope of Museum Library	
Selection and Acquisition	
Reference Works	
Classification and Cataloguing	
Building for the Library	
Staff	
CHAPTER XXI	
REPRODUCTION OF MUSEUM OBJECTS	276
Museum Photography	
Types of Photography	
Modeling	
Types of Modeling	
Responsibility of Curators	
CRAPTER XXII	
MUSEUMS IN THE PROMOTION OF TOURISM	280
Attendance of Visitors at Museums and Galleries	
Activities in Museums	
Interaction between Tourist Operators and Museums	

CHAPTER XXIII	
MUSEUM PROBLEMS	285
Faking	
Forgery	
Methods of Bronze Casting	
Authentication	
Staff Problems	
CHAPTER XXIV	
MUSEUM MARKETING	293
Orientation	
Product Orientation	
Sales Orientation	
Marketing Orientation	
Pre-requisite for Museum Marketing	
Museum Marketing	
Strategy	
Bibliography	299

ACKNOWLEDGEMENTS

Museology is the science of running museums. Museums are the panorama of art and culture. We have a great Heritage. Museums are portraying and preserving intangible Heritage along with tangible Heritage materials. Museology now has emerged as a separate field like other sciences. Indian museums have started attracting visitors like other countries. Now importance is also given to museums by government and public alike. There is awareness about the preservation of the past. As museums do preserve the past for the present and the future, the role of Curators or custodians has emerged as an essential one. There are about 100 museums in Tamilnadu itself and over 700 museums in India. The Central Government has many programmes to bridge the museums in this country. The Museums Association of India tries its level best to bring together museums and arranges camps, seminars etc., making the museums vibrant. Museums like the National Museum, New Delhi; Indian Museum, Kolkata; Chatrapati Shivaji Museum, Mumbai; National Museum of Natural History, New Delhi; Salar Jung Museum, Hyderabad; Government Museum, Chennai etc., try to lead museums in this country as nodal agencies. Some State Museums are now being considered by the Government of India for their up-gradation on par with international museums. Universities have started teaching museology. Museums have started giving training to their staff. Museum marketing is taken in to consideration by most of the museums. For sustainability many reforms have to be made in museums. Due to zero budgetting, the workload of museum personnel has increased. Outsourcing the museum activities has become inevitable. Many museums have outsourced works such as hygienic, security, designing. The museum administrators have to find out the way for running the museums efficiently by providing all types of support so that the museum personnel will be able to execute the museological and museographical activities in the best way. What ever may be the method of administration, the museum personnel must have a thorough knowledge in museology. One should know the global museum scenario. There is a great need for source books in museology comprising all the modern techniques and methodologies.

Even though I entered in to the museum field in 1978, I could start writing on museology only after my three months fellowship visit to the UK under the auspices of the Nehru Trust for Indian Collections at the Victoria and Albert Museum, New Delhi through the Charles Wallace Grant to study the Current Policies and Practices in UK Museums. My visit to France and Germany motivated me to write a book on museology. In 1996 there was an opportunity for me to start writing a book on museology-Heritage Management. I started writing articles also in various facets of museology. I wrote many books on conservation of museum objects and related subjects and were published by the department of museums. When I taught museology to the students of Madras Christian College, University of Madras, State Institute of Archaeology, Art History and Conservation, Tirupunithura, Kerala etc., I felt the need for a book on museology comprising various aspects of museology so that the book will be useful to the students of museology and museum personnel as well. It got momentum when my well-wishers and friends asked me to bring out a book on museology. I had an opportunity to visit Melbourne, Australia in 2000 through the Getty Travel Grant and I visited many museums there and I discussed the museum problems with many of the Australian professionals. This made me to update my book with the current trends in museology. I could also include in this book aspects of museology then and there.

This book now has got various aspects of museology in brief. My exposure and experience in the museum field are incorporated in this book. I thank God for all his providential help althrough.

The Government of Tamilnadu allots funds for bringing new books and reprinting of old publications of the museum. When I requested the Director of Museums, Mr. M. A. Siddique, I.A.S., to consider my book for publication during 2004-2005, he considered my book for publication. I thank him for bringing out this publication and giving his foreword to this book.


With out the spontaneous help of the authorities of various museums from India and aborad, I would not have accomplished this great task. I am thankful to the authorities of the Victoria and Albert Museum, London and British Museum, London for their help in providing information and photographs pertaining to them when I was in London during 1994. I am specially thankful to Dr. D.A. Swallow, the then Curator, Indian Section, V & A Museum, London and the present Director, Courtauld Institute, London for her encouragement. I thank all the museum authorities of the National Museum, New Delhi; National Museum of Natural History, New Delhi; Chatrapati Sivaji Museum, Mumbai; Museum of Mankind, Bhopal; Indian Museum, Kolkata; Allahabad Museum, Allahabad; Salar Jung Museum, Hyderabad; Government Museum and Art Gallery, Chandigarh; Government Museum, Mathura and friends from other museums for helping me with information related to the museums and galleries mentioned in this book.

I thank the former Commissioners, Directors, Deputy Directors, Assistant Directors, Curators and the present day Curators of this department Mr. P. Jawahar, Mr. M. Mohan, Mr. J. R. Asokan, Mr. R. Balasubramanian, Mr. K. Sekar, Mrs. R. Santhi, Mrs. M. N. Pushpa, Mrs. A. Prema Deebarani from Chennai, Dr. C. Maheswaran, Messers. P. Kasilingam, C. Rajamohan, P. Sam Sathiaraj, Mr. N. Soundarapandian, G. Karunanidhi, S. Sravanan, A. Periasamy, G. Kalathi, N. Sundararajan, T. Packirisamy, J. Mullai Arasu, C. Govindarajan, P. Saravanakumar, Ms. S. Krishnammal, R. D. Thulasi Brinda, Ms. J. M. Gandhimathi for their good wishes and help in this regard. I miss Mr. K. Lakshiminarayanan, one of the former Assistant Directors of this museum, who is not here to see the book.

I recollect the help rendered by all my friends and family members, Ms. Hephzibah, my wife, Ms. J. Christy Veda, my daughter and J. Abraham Durairaj, my son (who designed the wrapper) for their help in writing this book. I cannot forget my staff Mr. J. D. Jagannathan, Mr. B. Saravanan, Mr. B. Raja Balachandra Murugan, S. Sampath, Mr. J. Kumaran in the Chemical Conservation and Research Laboratory who were always helpful to me in writing this book. I thank the staff of the photographic unit, Messers S. Muthukrishnan, P. Girija Sankar and Technical Assistant, Mr. G. Ramesh for the help rendered in photography. I remember the help rendered by my research scholars Fr. A. Vijay Kiran, Ms. Divya Durga Prasad, Ms. Bessie Cecil for their assistance in my work. I am thankful to Mr. Sundaram and his staff for printing the book nicely on tim.e.

Chennai-600 008,
21-3-2005.

12


21/3/2005
(V. Jeyaraj)

CHAPTER I

INTRODUCTION TO MUSEOLOGY

Heritage is our legacy from the past, what we live with today, and what we pass on to future generation. What makes the world heritage exceptional is its universal application. World Heritage sites belong to all the people of the world, irrespective of the territory on which they are located. Heritage is the remnant of our fore fathers which is handed over to us or inherited by us. Art and craft are part of our heritage. Cultural materials are collected, preserved and displayed in the museums. Museology is the science of museums. The ICOM Training Unit in June 1971 defined Museology as Follows : Museology is museum science. It has to do with the study of history and background of museums, their role in society, specific systems for research, conservation education and organisation, relationship the physical environment, and the classification of different kinds of museums. Museography covers methods and practices in the operation of Museums, in all their various aspects. Museums deal with the materials of the past and the present. Culture and cultural heritage have a special significance today. India has a rich cultural heritage. As we have marched in to the 21st Century, it is going to judge us by not what we have preserved but what we have destroyed either negligently or deliberately. We have destroyed much because of our ignorance. Much awareness is being created by various organisations in the past in order to preserve our past to the posterity. On the global scenario, the UNESCO has set the mood over a decade ago by identifying World Heritage Monuments. Countries with lesser heritage than our own are involved with preserving and propagating their antiquity. And we, with the longest living tradition are still not firm on our legs. Every culture represents a unique and irreplaceable body of values as each people's traditions and forms of expression are its most effective means of demonstrating its presence into the world. The identity of a community is reflected in the legacy it leaves back in the entire evolutionary process and this evidence is in three distinct forms. They are:

1. Tangible forms (in the form of built-up heritage, art, craft, materials of science and technology)
2. Intangible form (in the form of traditions, customs and manners, folklore, culture, values, knowledge, skill, etc)
3. Expressive form (language, music, dance etc)

All such tangible and intangible relics, which we call heritage, serve as tools and sources for an emphatic understanding of the past. Preservation of this heritage in all its connotations is, today, a significant aspect of a well thought out "Culture Management Policy".

Museum

"Museum" is a word derived from the Greek word "*Mouseion*", meaning the temple of muses i.e., nine goddesses associated with learning of epic, music, love poetry, oratory,

history, tragedy, comedy, dance and astrology. There are various definitions of museum. For Greeks *Mouseion* is a place of contemplation, a philosophical institution, or a temple of the muses.

A museum is a place of philosophical discussions. In the late 18th Century, a museum was considered to be a building used for the storage and exhibition of historic and natural objects. Museum requires some original materials to communicate and not some secondary sources.

A museum is a place where our total heritage is preserved, exhibited, researched upon and propagated with homage to the gods and goddesses of knowledge.

A nation's past is reflected in a museum through its collections which are nothing but the silent witnesses of art, architecture, craftsmanship, etc., representing the rich cultural heritage of the past.

A museum is a repository of knowledge about what we were. A museum being a repository of authentic objects is a special kind of institution.

A museum is a mirror, which reflects the ancient cultural glory of a nation, and it is in the museum that today's man traces his yesterday and steers for a better tomorrow.

A museum is a medium of communication, where it is able to exhibit the object itself unlike, cinema, television etc.

A museum is a recreation centre, a place to learn, a collector's paradise, a research laboratory, a craftsman's Mecca, a world's fair of art.

A museum is a cultural centre, which educates people about their cultural heritage.

A descriptive definition of museum adopted by the Museum Association of India is as follows:

Museum is a show window of knowledge.

Promotes national integration.

It is a mine of knowledge and source of recreation.

It preserves the past for the future.

It is a synonym of education and entertainment.

It brings people together.

It is a mirror of our traditions.

Whether there is war or peace it preserves the cultural heritage.

Heritage and development go hand in hand.

According to the Association of American Museums, museums are permanent, non-profit

places regularly open to the public that retain one or more professionally trained, paid staff members. Their purpose is to house and / or interpret collections of artistic, historic, or scientific importance, which they conserve, exhibit, and interpret for the education and enjoyment of the public.

The definition adopted at the Annual General Meeting of the Museum Association was: 'A museum is an institution, which collects, documents, preserves, exhibits and interprets material evidence and associated information for the public benefit'.

UNESCO definition of museum is as follows:

A museum is a medium of life-long education through which an awareness of the social, economic and political aspects of scientific, technological and environmental development could be created.

As per the Statutes (ICOM Statutes, Article 2, Para. I) adopted by the 11th General Assembly of ICOM (Copenhagen, 14th June 1974) and incorporating the amendments adopted by the 14th General Assembly (London, 1-2 August 1983) and by the 15th General Assembly (Buenos Aires, 4th Nov. 1986), A museum is a non-profit making permanent institution in the services of the society and of its development, and open to the public, which acquires, conserves, researches, communicate and exhibits for purposes of study, education and enjoyment, material evidence of people and their environment.

History of Museums

The earliest reference about a museum was at Ur, which was brought to light by the excavation at Ur. The conception of museum collection dates back to the 4th Century BC when Alexander used to send natural history specimens, selected by his scientific observers, accompanying him during his invasion of Asia, in 288 BC, that a centre of learning which was basically a library and an academy for advanced study with a remarkable collection of statues of thinkers, astronomical and surgical instruments, biological specimens, which was, for the first time, designated as a museum. Ptolemy I was responsible for founding the first museum in the world. When, in the 3rd Century BC, he threw open to the public view, an institution housing four lakhs of inscribed terracotta tablets for decipherment, study and research by the visiting scholars at Alexandria in Egypt. The Emperor, Hadrian, at his villa near Tivoli, the grounds of which covered some 7 square miles erected copies of some of the structures he had visited during his tours of the empire to form a precursor of the idea of an open air museum. In the 15th Century, in Florence, the word *museum* was first used to describe the collection of Medici at the time of Lorenze, the Magnificent.

In the modern sense, for the first time the collection bequeathed by the Grimani family was made available for visitors in 1523. This was the basis of the present archaeological museum in Venice. The first museum specifically for the public benefit in France was that in the Abbey of St. Vincent at Besancon. In 1625, biological and artefact collection by John Tradescant and his son at Lambeth, London was available for public. In 1683, the Ashmolean Museum, set up in Oxford University with the donation of the collection of Elias Ashmole

and John Tradescant, was the first public museum in UK and in the world. It was a research institute. In 1714, Peter I established a museum for the public. It is now called as the Hermitage Museum. Sometimes in between 1740-1745, Pope Benedict XIV established the first Christian Museum in the Vatican City. It was in 1753 that the *British Museum* had originated with the notable collection of Sir Hans Sloane, the Royal Physician of Queen Anne and George I. In 1773, the Charleston Library Society established a museum in South Carolina in the United States. In Spain the Royal Museum of Prado was opened to the public by the orders of Joseph Bonaparte in 1809. It was Frederick William II who passed orders for the creation of a public museum in 1810. The first museum in Australia, Macleay Museum, University of Sydney was established in 1874. In 1825, the first museum of Africa, The South African Museum, Cape was established. The Louvre was open to the public on a limited basis, but it was the French Revolution, in 1789, that made it truly a public facility.



British Museum, London

Beginning from 1785, i.e. from Charles Willson Peales museological and entrepreneurial activities in Philadelphia to the establishment of the National Museum in 1846, by an Act of the Senate of the United States, museum development in the United States was a public affair. James Smithson, the founder English donor of the Smithsonian Institution described his extension of funding as to increase and diffusion of knowledge among men. The significant growth of American museums had begun in the 1920's, had halted in the war and then made a rapid advance to the 5,000 mark. Hermitage in Leningrad in Russia is one of the largest museums in the world and specialises in arts. There are over 30000 museums in the whole world. There are over 5,500 museums in America. In the UK there were 900 museums and galleries in the UK in 1962. At present there are over 2,500 museums.

History of Museums in the Indian Context

In India, the seed of museum was sown in the ancient time in pre-historic cave paintings, *alekhyagrihas* (*Ranga Mahal* - Hall of paintings), *chitrasalas* (Paintings Gallery), *devakulas*, *visvakarma mandirs* and monasteries, that served the purpose of education and healthy entertainment. The great stupa at Bharhut with its inscriptions in the contemporary *Brahmi* for identification of schemes did exist as an open-air museum. Even today, temples, monasteries etc., function as museums in our country. The genesis of the present day museum goes back to the foundation of the Asiatic Society of Bengal in 1784. For the first time, the Asiatic society



Front View of the Indian Museum, Kolkata

of Bengal, by a historical decision in 1796 to open its collection to the public, established the *Indian Museum*, Kolkata in 1814 under the Curatorship of Dr. Nathaniel Wallich. This inspired the Madras Literary Society for opening a Museum of Economic Geology in Chennai in 1828 but was established in 1851 in Chennai and Edward Green Balfour took charge of the museum. Dr. Balfour wanted to start provincial museums at Bangalore, Bellary, Coimbatore, Cuddalore, Ooty, Secundrabad, Mangalore and Trichy. But only six provincial museums could be established. This period was a great incentive for other parts of the country to accelerate the museum movements slowly but steadily which resulted in establishment of Victoria Museum, Karachi in 1851, the Prince of Wales Museum in 1853 and Trivandrum Natural History Museum and Baroda Museum in 1857.

The outburst of Indian Mutiny in 1857 left its impact on the growth of the cultural institutions. By the year 1857, there were twelve museums in India. The progress of the Indian Museum Movement was slowed down for a short while. In 1863, State Museums at Lucknow and Nagpur were opened. It was in 1864 that a museum was established in Lahore. Following these, six museums at Bangalore (1865), Faizabad (1867), Delhi Municipal Museum (1868), Calcutta Economic Museum (1872), Mathura Museum (1874), Raipur Museum (1875) and Srinagar Museum (1886) were opened. During the coronation year of Queen Victoria, 1887, many museums were established.

During the viceroyalty of Lord Lytton that the Indian Treasure-trove Act was passed in 1878. At the end of the 19th Century, there appeared a few more new museums at Trichur, Udaipur, Bhopal and Jaipur in 1887, Rajkot in 1888, Baroda and Begawada 1894, Bhavanagar and Trichirapalli in 1893. In the middle of the 20th Century State Museum of Assam, Guwahati (1940), Central Museum, Arunachal Pradesh (1956), Punjab Government Museum (1959), Orissa State Museum (1963) and Manipur State Museum (1969) were established.

The dawn of the 20th Century was an era of awakening and great reforms. Because of the efforts of Lord Curzon many site museums were opened at important sites through the Archaeological Survey of India. Site museums at Saranath, Pagan, Taxila, Nalanda, Mohanjadora and Harappa (now in Pakistan) were established. Later site museums at Chamba, Jodhpur in 1909, Khajuraho and Gwalior in 1910 and Dacca (now in Bangladesh) in 1931 were opened.

During the visit of the Prince of Wales to India in order to commemorate this occasion, the Prince of Wales Museum was opened. It was completed in 1914. In 1936, there were 105 museums in India. By the recommendation of Markham and Hargreaves, in 1946 all the museums under the Archaeological Survey of India were brought under the control of the Museum Branch of the Archaeological Survey of India. Now there are about 700 museums in India.

History of Museums in Tamil Nadu

It was about 1828, that the Madras Literary Society, an auxiliary of the Asiatic Society of London, started their campaign to start a museum of economic geology in Chennai. The society based its demand for a public museum in Chennai on the growing economic distress of the presidency, and need to develop the non-agricultural resources and also help the people to find new means for the economic improvement. During 28th February 1844, Henry Chamier, a member of the Council recommended Madras Literary Society, to start a museum for the benefit of the scholars and students and to the court of directors of the East India Company.

This Museum was organised during the year 1851, with about 1,100 geological objects with surgeon E.G. Balfour (1851-59) as the first officer-in-charge in the College of Fort St. George at College Road, Nungambakkam. Museum was thrown open to the public on April 29, 1851. Members of European Community as well as Indian donors like Rajas of Cochin and Travancore, the Nawab of Carnatic and several South Indian Zamindars, added to its collections.

In 1854, the museum was moved to the Pantheon road, with Natural History Section with Zoological Garden, Geographical Geology, Economic Geology and Public Library. The museum herbarium was built up by Colonel Beddome's collection from the forest department. Captain Mitchell collected medals, illustrative of the history of Madras. In 1861, the contacts between the Chennai Museum and Robert Bruce Foote of the Geological Survey of India began. In 1865, the Tanjore Armoury was transferred to the Chennai Museum from the Arsenal, Fort St. George. Geology was the chief field of activity during Balfour's time. Zoology was so during the period of Dr. Bidie.

The collection of pottery from the ancient burials of the Nilgris, now known as the Break's collection, reached the museum in 1856, during Dr. Balfour's reign. The famous Whale's skeleton was added to the zoology section in June 1874 during Surgeon Major. M. C. Furnell's period. The Governor opened the Library and the Centenary Hall on 16th March 1876.

The front building with its anthropological collections and the Museum Theatre were sanctioned in 1890. Gamble's collection of "Madras Botanical Specimens" was received in 1892. The Victoria Institute, Connemara Public Library and the Theatre were declared open by the then Governor, Sir Arthur Havelock, on 5th December 1876. At the initiative of Dr. Edgar Thurston, Superintendent of the Chennai Museum, anthropology was made a subject of study for the M.A. Degree course in Madras University in 1895. During 1898-99, the Madras Herbarium was transferred to the Government Botanist



Victoria Hall, Government Museum, Chennai

at Coimbatore. During Dr. J. R. Henderson's period potteries from Adichanallur and Perumbair were added to the collection. The Forest Museum was started in Coimbatore in 1902. In 1903, the Aquarium was started at the Marina, Chennai.

Dr. Frederic Henry Gravely, who was Superintendent of the Madras Central Museum from 1920-1940, was responsible to a great extent for building up the research activities of the great institution, and giving it a place among the great museums of the world. The Chemical Conservation and Research Laboratory in the museum owes its inception to his scientific vision and foresight. Dr. S. Paramasivan was the first Curator of the Laboratory who did yeoman service in the field of conservation.

During Dr. Frederic Henry Gravely's period, His Excellency, the Governor opened the Archaeological Gallery in the ground floor of the new extension on 4th December 1939. Dr. A. Aiyappan was the first Indian to succeed the European officer. The Dowlaishwaram hoard of gold coins of Raja Raja Chola I and Kulothunka I, Natesa from Ponipumettupatti, Kathakali dancers, Relics from the Brahmagiri cist burial, stone tools of Peking Man, shadow play figures from Malabar and boomerang collections were noteworthy collections of this period.

In 1941-42, murals of Ajantha, Sigiriya, Panamalai, Central Asia, along with some modern paintings were added to the museum and the new gallery at the Victoria Hall was called National Art Gallery, which was thrown open to the public in 1951, by the then honourable Prime Minister, Pandit Jawaharlal Nehru. In 1949, the Pudukkottai museum began to function as an independent museum.

Dr. S. T. Satyamurti, the then Zoology Curator, took over charge as the Superintendent from Dr. A. Ayyappan in 1958. During his period, the designation of the head of the museum changed from Superintendent to Director of Museums. In 1963, the new extension to the Natural History Gallery and new block of the Chemical Conservation and Research Laboratory were opened. During the year 1964, the Bronze Gallery was organised with *Saivite* and *Vaishnavite* bronzes along with Jain and Buddhist pieces. The Philately Gallery was started in 1966. The education section was started in 1971 in order to carry out educational activities in the museum and out-reach programmes. The Numismatic Gallery was established in 1976. Thiru. N. Harinarayana, a Conservation Chemist took over the charge as Director of Museums in 1978. In 1978, Coins Gallery, with models of coins belonging to various dynasties, commemorative medals and charts like Magna Carta were thrown open to the public. In 1980, the Design and Display Section was got sanctioned to take up display and exhibition work. The Contemporary Art Gallery was added as an annexe to the National Art Gallery, where the contemporary paintings are kept on display. During 1987, Children's Museum was inaugurated by the then Governor, Thiru. P.C. Alexander. The gallery depicts various civilisations, models of plants, animals, and geological objects along with scientific models. The folk art gallery was established for the first time in India. The Chemical Conservation Gallery was established in 1997 for the

first time in the history of museums in India. Today the Government Museum, Chennai consists of eleven sections and out of them nine sections are provided with galleries. The Government Museum, Chennai has been recognised as a research institution to conduct research leading to Ph. D. Degree by the University of Madras in 1997. During the 151st Anniversary celebrations, galleries such as the Bronze Gallery, Numismatic Gallery and Conservation Gallery were refurbished. The Progress of Industries and Handicrafts of Tamilnadu Gallery was established as per the wish of the President of India. These galleries were dedicated to the nation by His Excellency, the President of India, Dr. A.P. J. Abdul Kalam.

History of District Museums in Tamil Nadu

India is a country, which consists of rural masses. Our cultural heritage is great and the village masses do not have a chance to see our artistic and cultural heritage in the museums. One must know his history to grow in a better way. In order to make our people know our history through visual means every body must visit the museums. It is difficult for everyone to come to the State head quarters and visit the museum. According to the policy of the Government of Tamil Nadu, every district must have a museum.

The first district Museum at Pudukkottai was taken over in 1949 from the erstwhile Pudukkottai rulers. Government Museum, Salem was the first museum started after independence. The district collector, Thiru.A.M Swaminathan, IAS., started it in 1976 and was taken over by the Department of Museums in 1979. Then district museums at Madurai (1981), Tiruchi (1983), Vellore (1985), Erode (1987), Cuddalore (1988), Uthagamandalam (1989), Coimbatore (1990), Kanyakumari (1991), Thirunelveli (Palayamkottai) (1992), and Krishnagiri (1993) were established. After a long gap of four years the thirteenth district museum was established at Palani in 1997. Two Government Museums were started at Sivaganga and Tiruvarur in 1998. District museums were started both in Nagapattinam and Kanchipuram in 1999. The museums at Karur and Ramanathapuram were established in 2000. The Government Museum, Virudhunagar was open to public in 2001. Now there are 20 district museums in Tamil Nadu under the Department of Museums. The State Department of Archaeology had sixteen archaeological museums till the closure of the museums at Korkai and Rameswaram in 2002.

Tamil Nadu has different types of museums. This State only has over hundred museums, galleries and memorials. They are run by government, universities, colleges, schools, trusts, societies etc. The college museum at Madras Christian College, Forest Museum at Coimbatore are some of the earliest museums in Tamil Nadu in the district level.



Government Museum, Erode

Bibliography

1. Banerjee, N. R., *Museum and Cultural Heritage in India*, Agam Kala Prakashan, Delhi, 1990.
2. Centenary Souvenir (1851-1951), Madras Government Museum, 1951.
3. David Elvinson, Melvin Ember, *Encyclopaedia of Cultural Anthropology*, Vol. 3, New York, 1996.
4. Fuller, N., *The Museum as a Vehicle for Community Empowerment: The Ak-chin Indian Community Ecomuseum Project*, (Book) *Museum and Communities*, Ed. I. Karp, C. Kreamer and S. Lavine, Smithsonian Institution Press, Washington D.C., 1992.
5. Gary Edson and David Dean, *The Handbook of Museums*, Routledge, London and New York,
6. Geoffrey D. Lewis, *Museums in Britain: 1920 to the Present Day*, *Manual of Curatorship*, Ed. John M. A. Thompson and others, Butterworths, 1984.
7. ICOM News Vol. 57, No. 2, 2004.
8. ICOM Statutes and Code of Professional Ethics, Published by International Council of Museums, Paris, 1987.
9. Information Brochure (1996-97), National Museum Institute of History, Conservation and Museology, C / O National Museum, Janpath, New Delhi-110011.
10. Markham, S. F., and Hargreaves, H., *The Museums of India*, London, 1936.
11. Michael Brawne, *The New Museum Architecture and Display*, Frederick A. Praeger Publishers, New York, 1965.
12. *Museums Journal*, Volume 66, Number 2, September 1966, London.
13. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, 1985.
14. Poundurai, R., *Museology*, Tamil Traditional Centre, Thanjavur, 1991.
15. Shdashiv Gorakshkar, *Marketing Heritage – Corporate Involvement*, *Journal of Indian Museums*, Vol. LII, 1995-96.
16. Sharma, T. C., *Museum in the Service of Mankind*, *Bulletin of the Assam State Museum*, No. X, 1988.
18. Thompson, J. M. A., (Ed) *Manual of Curatorship*, Butterworths, London, 1984.

CHAPTER II

MUSEUM ARCHITECTURE

Traditional Museum Buildings

The *chitrasalas*, *chitrasabhas*, *mandapas* etc., in the olden days were considered as common meeting places. Even-though they were not acting as museums but were used as very important centres to preserve the art and culture. The monuments in which the *chitrasabhas* etc., were situated are very great examples of good architecture. Palaces, temples, *mandapas* etc., were chosen for setting up museums as they could attract the onlookers. Particularly the *Pilgrim's Hall* in the city Plymouth was a renaissance temple constructed by the Greeks in 1824. Since there were a lot of changes in the architectural styles, the buildings for the museums also took many changes. Since there were many changes in the architecture of the buildings during the Victorian times, museums were established in Victorian buildings as they were massive and attractive to look at. For example buildings of the Louvre Museum at Paris, Indian Museum, Kolkata, Prince of Wales Museum (Chatrapati Shivaji Museum), Mumbai, Museums at Udaipur and Jaipur, Government Museum, Chennai, Victoria Memorial, Kolkata, Modern Art Gallery, New Delhi etc., are considered to be the best monuments in their locality. The best way to preserve such buildings is to declare them as national monuments.



Chatrapati Shivaji Museum, Mumbai

These buildings are the offspring of the architectural styles of the Greek and the Roman architectures. Broad steps, colossal pillars, triangular frontages, frontages facing the streets, large arches, domes, circular buildings, wooden bridges, many pillars, ornamental and high ceilings, thick walls, large windows etc., are the characteristics of this style. This type of buildings is not suitable for museums as the cost of maintenance is very high and they are prone to seepage and leakage thereby spoiling the objects displayed in them.

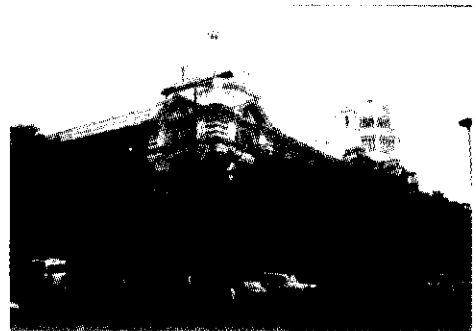
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Modern Museum Buildings

Museums in the European countries are functioning in colossal buildings, which are the remnants of the early architecture. They are not considered to be good cultural centres but ancient monumental buildings. Since the available buildings were used to establish museums they were not able to satisfy all the requirements of a museum. Some or other requirements were not satisfied. In the modern days the museums are organised in buildings constructed for the purpose of museum. E.g. The British Museum, London, Victoria and Albert Museum, London, Metropolitan Museum, New York, National Museum, New Delhi, Some buildings of the Government Museum, Chennai. The buildings of the Government Museum and Art

Gallery, Chandigarh and the Sankar Kendra, Ahmedabad etc., have been designed according to their requirements, functional viewpoint and aesthetic appeal. One of the disturbing trends of museum architecture in the fifties and sixties have, however, been the near total exclusion of natural light which made the museum a closed box with artificial lighting. The tendency fortunately, has not followed in new museums that came up later, like the New Mexican Museum of Natural History, Albuquerque, the Smithsonian Air and Space Museum, the Museum of Civilisation at Quebec City in Canada and the U. S. Holocaust Museum, Washington DC just to mention a few examples. Novel designs of museums such as the Guggenheim Museum in New York and Frank Lloyd Wright's innovative architectural designs are worth to mention when we talk about the modern architecture. The Raja Monsingh Museum, Baroda has been designed to take in natural light.

In India, especially in Tamil Nadu, museums are established in every district head quarters in the available buildings. Most of the buildings are not suitable for museums. But, they have been meaningfully utilised. The Police Museum attached to the Police Training School at Ashok Nagar, Chennai was established in a hall in which the windows etc., were made as show cases and today it functions as a very good Police Museum.



Front View of the Victoria and Albert Museum
London

Traditions of Museum Buildings

Constructing a suitable building, which satisfies all the requirements of a modern museum, is not possible. But it is always good to see that maximum requirements are satisfied in such a building. Keeping in mind the available materials, the finance, type of the museum, type of objects to be collected, expansion to be made etc., the building should be constructed.

Planning a Museum out of an Old Building

One can make initial enquiries about planning proposals for the area, which may affect an existing and proposed museum. Site potentiality and the requirements of the museum should be clearly visualised. Professional advice from an architect and also advice from the chief fire officer, the building engineer and professional safety consultant in the case of using an old building for the museum, cost on water, electricity, tax; cost involved in the maintenance of a planned cycle of repairing and washing of the fabric, replacement of carpets, resurfacing the car parks; unforeseen problems such as damage to the building, addition to the buildings to accommodate the changing needs of the museum should be obtained.

Commissioning New Buildings

In the commissioning of new buildings there are two parties to handle the work. One is the Curator along with the administration. The other is the engineering architect along with the contractor. Many museums have to go with the public works department of the respective governments for the construction of buildings for the museums.

The curatorial part is very important for the success of the project. From time to time it does happen that museums are able to commission new buildings to make major works of adaptation to existing premises. While planning a building for the museum, depending upon the budget ceiling, the scope and the objectives of the museum should be clearly visualised. Curatorial objectives, area requirements, plant requirements, activities to be undertaken, administrative arrangements, financial constraints should be listed out.

Programmes and scenarios for use of the site and premises such as selection of site or building, setting and communication, nature of users, state of site, land acquisition requirements, planning constraints, specific technical requirements in performance of building and environmental controls, general purposes, alternative options for realising them, general cost estimates etc., should be worked out.

Basic programming such as detailed specifications and analysis of costs in the light of preferred option, preliminary time tabling of the operation, schedule of specific requirements, financing and costing of the project, remaining instructions, operational requirements to enable project to proceed etc., should be handled judiciously by the curatorial staff. Depending upon the cost involved, the works have to be carried out by floating the work through open tenders.

The choice of the architect is another important factor in the construction of a building. There are museums, which called for open tenders for designs and the best designers, and architects had been chosen for the project. The architect has to consider the various points such as, site factors, geology of the site, structural problems posed, services available, preliminary assessment of the building cost, outline proposal leading to planning application etc., such as planning of main elements in the light of the preferred option, sketch designs, computer aided designs, firm estimate of the building costs, scheme designs such as calling for tenders and to execute the contract. In the case of government museums the Public Works Departments will carry out the work. Some times the special buildings division of the Public Works Department also takes up the work depending upon the quantum of the budget.

Architectural Considerations

After studying the requirements of a museum building carefully, functional analysis and planning on the basis of the utilities of the space should be done. The museum building should inter link both the public zone and the technical zone properly and creates good and smooth circulation within the building, without interfering with each other. Over and above

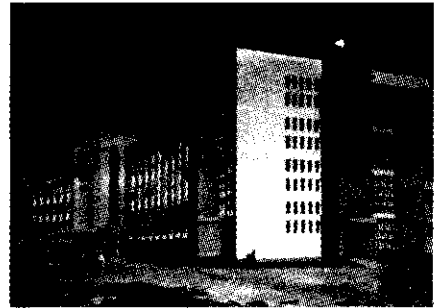
the zoning of the internal areas, it is also necessary to create some breathing places or relief areas and open space by providing water pools or greenery inside the building to break monotony and create pleasant environment. Salar Jung Museum, Hyderabad has such provision in the galleries. Many museums keep pot crotons inside the galleries to break monotony. In the Assam State Museum, Guwahati the objects in the Sculpture Gallery are displayed both in the showcases and on open pedestals to break the monotony. As the museum buildings are for public utility and also serve as monumental buildings, great care is required in conceiving and designing of such buildings. Great care and thought are also needed for selection of building materials and construction techniques. It is always better to use materials, which will retard fire, insects etc.

Apart from planning and designing of museum building to serve the functions for which it is intended, it is necessary to take into consideration the modern requirements such as required type of finish on the floors, walls and ceiling for easy maintenance, thermal insulation and protection from climate. Building services such as lighting and ventilation, electrical installations, air-conditioning, hydrants, closed circuit television, acoustical treatment, lifts, plumbing services and fire protection, should also be planned thoughtfully so that they do not interfere with functional spaces.

In the form and contents museum buildings have to be designed after giving due consideration to art and aesthetics. They must be in harmony with the surroundings, national in character but in tune with the changing requirements imposed by developments in the field of science and technology. The new building constructed as additional building to the Salar Jung Museum, Hyderabad is similar to the existing building in character and style.

Structural Designs

In earlier times the structures for museum building had to be evolved on the basis of the then known principles of structural designing which imposed certain restrictions in organisation of spaces in the building. The modern advancement in structural designing has made available greater possibility in the direction as well for achieving economy in cost of construction. Larger spaces can be provided resulting in great flexibility in planning and ease in making addition and alterations. Lighting and ventilation can be organised in a better way, surface treatment of required type can be ensured, provisions of services and utilities can be arranged at required places and, there fore, the quality of building can be improved. Advancements in construction technology supported by development in building materials and building products are being applied to museum architecture. One notable development is the planning; designing and construction of tall buildings and heavier structure instead of low rise buildings. The introduction of industrialised building methods and



Front View of Salar Jung Museum
Hyderabad

prefabricated techniques of construction have resulted in speedier construction and architectural forms, modern in concept and design.

While planning the construction of a museum building the following should be kept in mind:

1. The architecture of the building should be based on the type of objects available, the future development, easy for the reach of the public, transportation facilities etc.
2. The building architecture should be based on the number of visitors, number of staff of the museum and the changing trend in the future.
3. Since the visitors' facilities should be given importance, it should be kept in mind that provisions should be made for the future facilities to be provided.
4. It is always better to have a co-ordinated building in order to have better security and for the easy access for the visitors and staff.

Components of a Good Building for a Museum

A building is beautiful when it is functional and planned for convenience. The components of the building decide the good architecture suitable for a museum. Good museum architecture is also decided by walls, floors, ceilings, ventilation, relief areas etc., of the building. The treatment of walls, floors, ceilings, ventilation, relief areas etc., help to the gallery to have a good look.

Walls

Walls give protection to the objects in the gallery. If the walls are exposed to sun and rain, it is always better to treat the walls externally with suitable materials so that the walls will not transmit heat and moisture inside the galleries. If the windows and electrical fittings are 8 feet above the inner ground level, the wall space will be useful for display or background for exhibits. It is better to paint so that the walls can be kept clean and can be washed, if needed. Wall panelling will be useful for display. It is advisable to have wooden panels away from the wall.

Floor

The floor of a museum also is important. The floor should be such that it does not absorb dust and dirt and easily washable. The floor should not be slippery. The floor should be darker than the wall so that the light is not reflected on the exhibits. Materials, which cannot suck water from the ground, are good for flooring.

Ceilings

Ceilings play a very important role in the museum architecture. Lighting fixtures may be suspended from the ceilings and wiring can be concealed one. The ceiling should be plain and white so that it may reflect light. The roof should be leak proof.

Ventilation

Ventilation plays a very important role in the museum architecture. Especially in Indian condition (tropical condition), ventilation is important to minimise the relative humidity and temperature. Windows and ventilators should be provided in such a way that cross-ventilation suiting the layout is possible. If possible, 24-hour air conditioning is good. In European countries windows are not necessary, which add beauty to the gallery.

Doors and Windows

The location of the doors and windows is very important in museums. The window should be above 8 feet so that they will not be a hindrance to the display. The doors should be larger in size so that big objects can be taken inside the galleries. They can be made out of wood or metal. They should be provided with locks. There should be emergency exits. They should facilitate free movement of air.

Seating Arrangements

Museum galleries must have seating arrangements for those who visit the museum. The seating arrangements should be in such a way that the visitors can relax during their visit. The seating arrangements should be in such a way that they go along with the type of display in the gallery. They should not distract the visitors when they visit the gallery.

Security Arrangements

The building must have security arrangements such as fire extinguishers, water pipe lines for the supply of water in an emergency, water sprinklers, fire alarms, closed circuit television, smoke detectors, public address system, walkie talkie etc. They should be properly monitored by good supervisors.

Lighting

Museum galleries must have proper lighting arrangements, alarms, smoke and fire detectors, electricity arrangements, motor generators to use in the absence of electricity. Now-a-days there is a breakthrough in the lighting in museums. Fibre optics is the best to safeguard the museum collection. Dichroic halogen lamps have replaced the normal lights as they dissipate heat at the back of the light fittings.

Direction of the Building

Whenever new buildings are constructed the direction of the building should be decided. In the tropical country like India most of the months the sun's hot rays fall on the buildings. If the direction is North-South the sun's rays will not enter into the buildings. It is also better to have proper sunshades to avoid the slanting rays in some months.

Public Area

The public area is nothing but the area available for the public who enter the museum.

This includes reception, ticket counter, sitting spaces, waiting halls, lecture theatre, education rooms, public telephones, refreshments, shops, toilets, permanent exhibitions, special exhibitions, library, archives and records, documentation, study collections, research room, curatorial offices etc.

Relief Area

It is monotonous when one continuously looks at the galleries. Therefore, some break ups in lobbies, little garden, seating arrangements for relaxation may be provided. Leaflets may be kept so that visitors can get them and go through them when they relax. If possible there may be video corners where the visitors can learn while relax. Touch screen kiosks may be provided in such areas.

Support Services Area

In order to maintain and make available the museum's resources, space must be allocated to a range of support functions. General museum services include direction, administration, security, maintenance workshops, cleaning equipment stores, materials stores, mess rooms and welfare facilities. In support of the collections space must be found for conservation laboratories and studios, the reception of incoming material and facilities for staff involved in fieldwork, research and collecting activities. In support of the presentation of the collections must be workshops, photographic facilities, design studios, offices for editorial staff, publication storage, information and public relations activities.

There should be separate entrance for the service area for the staff and a separate entrance for vehicles etc., to transport materials. Depending upon the size and kind of the museum the service area differs. The architecture of a museum should be suited to serve and convenient to use. The building should be functional and help visitors giving recreation. The building should be visitor friendly.

In general the total area can be tentatively divided as follows:

Permanent and special exhibitions	: 30%
Storage and archives	: 25%
Theatre and educational services	: 10%
Relief area	: 5%
Support services	: 30%
	<u>100%</u>

Conservation Principles

Conservation of buildings involves two categories. They are structural conservation and material conservation. The structural conservation involves conservation engineering.

Normally in India this is being undertaken by the Archaeological Survey of India. Recently the INTACH is also specialised in it. The Museums Department in Tamilnadu has launched many conservation projects. The Government Museum, Chennai is one of the members of the Committee formed by the Southern Railway in the project, Restoration of Heritage Buildings, Preservation of Heritage Towns etc. It has prepared many projects for the conservation of temples under the Hindu Religious and Endowment Board, Chennai etc.

A Conservator has a big role in the chemical conservation of the structural monuments. The old materials have to be analysed, the new materials have to be studied and the fixtures like paintings, mural paintings and other materials should be treated chemically. Whatever may be the method of treatment, one should understand the existing problems, the methods of decay, the deteriorating agents, the preventive measures and the interventive measures in conservation.

The Strategies for Preventive Conservation

One must know the history of the building, the materials used, the defects, measures to be taken to safeguard the building or cultural materials. The strategies of preventive conservation are,

1. Know your collection/building
2. Know the enemies of the collection/building
3. Identify the enemies of the collection/building
4. Avoid the enemies of the collection/building
5. Block the enemies of the collection/building
6. Monitor the enemies of the collection/building and act
7. Communicate the problem and find a solution

The preventive conservation is not the work of a Conservator or a Conservation Engineer. This is the duty of every body connected with the building or the collection. Every one must understand ones own role in the conservation. General training in conservation is a must to take up this noble task of preserving our heritage. Keeping this in mind, the Government Museum, Chennai is giving training to those who are involved in the preservation of cultural heritage. General awareness programmes are conducted in the districts too to create conservation awareness. The Chemical Conservation and Research Laboratory has thrown open many fields for taking up the conservation projects and the culmination will be an award of Ph. D. Degree as the Laboratory has been recognised by the Madras University to conduct research leading to Ph. D. Degree. When the Hindu Religious and Charitable Endowments Department of the Government of Tamilnadu was taking up cleaning of temples by sand blasting, the Department of Museums intervened and provided training to the Executive Officers of the department of Hindu Religious and Charitable Endowments

an alternate method of treatment. Along with this the Engineers from Southern Railway were also provided training in order to conserve the buildings under their control.

Conservation Engineering

Conservation engineering can be defined as the application of the art and science of civil and structural engineering to conserve historic buildings and monuments. It involves the safety of the building, which needs the structural analysis, history of the structure and observing the reality of the structure. We can involve both the old and new technologies depending upon the environment. The conservation procedure should adopt the reversibility. The engineer who involves in the conservation of the buildings must have a good knowledge of conservation principles.

One should study the criteria of the intervention in a historical building. The general criteria for repair and restoration of the buildings are,

1. Reversibility
2. Improving the overall stability of the structure
3. Stabilising the foundation of the building
4. Suppression of water circulation in the walls
5. Improving the cohesion of the materials
6. Improving the co-operation between mortar and brick or stone
7. Giving consideration to the aesthetic effects in all the operations etc.

Maintenance Routines

Maintaining the premises and buildings in a museum is a task by itself. In some museums Public Works Department does the maintenance work. The Curators report to the head of the museum about the repairs to be undertaken and the head of the museum in turn prioritise the work and entrust the work to the Public Works Department. The electrical facilities of the government museums are maintained by the Public Works Department Electrical Division. Maintenance should be tackled as a routine activity. This routine activity is based on the knowledge of the building, its contents and on its specific structural and environmental problems. We can divide the nature of maintenance work into three categories.

1. Daily Routines:

- i. Aeration of the building
- ii. Cleaning
- iii. Reporting any damage
- iv. Security check
- v. Attending to minor damage

- vi. Check for leakage
 - vii. Check for plant growth
 - viii. Removal of wastes
2. Monthly Routines:
- i. Inspecting the terrace
 - ii. Repair work of the flaking plaster
 - iii. Inspection by the site committee
3. Annual Routines:
- i. Interior lime wash or distemper coat
 - ii. Painting of doors and windows
 - iii. Annual report prepared for the maintenance of the buildings.

Conclusion

Museum architecture is a specialised one and the establishment of which needs the co-operation of the architects, building engineers, design engineers, display persons, conservators, administrators, curators. Even after the establishment of the building, the routines in maintenance should be given priority so that the contents of the museum will be preserved for posterity.

Bibliography

1. Devasahayam, N., Organising Police Museum, Madras, Studies in Museology, Journal of the Department of Museology, M. S. University, Baroda, Vol. XII, 1976-77.
2. Jeyaraj, V., The Traditions of Museum Buildings, Seminar Organised by the Department of Architecture on Traditions of Ancient Buildings, Tanjore, 1995.
3. Nagaraja Rao, M. S., Converting a Palace into a Museum, Museum and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
4. Nair, S. M., The Language of Museum Display, Journal of Indian Museums, Vol. XXXIX-L, 1993-94.
5. Nandini Borah Das, Planning a Modern Museum Building, Bulletin of the Assam State Museum, No. XIV, 1998.
6. Nigam, M. L., Fundamentals of Museology, Deva Publications, Hyderabad, 1985.
7. Proceedings of the UNESCO Regional Seminar on the Development of Museums, Jan-February, 1966.

8. Saifur Rahman Dar, Ed. *Museology and Museum Problems in Pakistan*, Lahore Museum, Lahore, 1981.
9. Sharma, R. C., *Museums and Their Relevance*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.
10. Smita J. Baxi, *Climate and Museum Architecture in the Tropics*, *Conservation in the Tropics*, Ed. O. P. Agrawal, International Centre for Conservation, Rome, 1972.
11. Sridhar Andhare, *Adaptation of Old Museum Building for Modern Presentation, with Special Reference to the Newly Opened Indian Pre and Proto-history Gallery at the Prince of Wales Museum, Bombay*, *Museums and Museology New Horizons*, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.

CHAPTER III

MUSEUM BUILDINGS

There are many requirements of a museum. The basic requirements are a good site environment, building, style, and various provisional amenities for the well functioning of a museum. A modern museum is a public institution where our cultural heritage is preserved for posterity while entertaining the present generation for the improvement of knowledge. Hence, the safety and security of a museum's contents are of at most importance. In the earlier days museums were places frequented by the rich and interested scholars only. But, today even common man frequently visits museums. Today museums are constructing their own buildings so as to conduct all kinds of activities required of a museum.

Main Requirements of a Museum

Location or Site

Selection of site for a museum to construct its building is very important. The site should be independent, so that further expansion of the museum is feasible at a later stage. It should be at a higher level than the other buildings. It is good to test the soil and the water table in the place. A good soil will add strength to the building. As the soil of the ground in the Government Museum, Chennai campus is not having good consistency the Contemporary Art Galley is facing some structural problems, which are being attended at certain areas. If the water table is normal and water is good the garden maintenance will be easy. Since the water is not good in the area of the Salar Jung Museum, Hyderabad the museum authority purchases water, which has increased the maintenance cost of the garden. It should be centrally located. It should be easily accessible to the visiting public. There should be no playground near by as it may provide security risk. It is better not to select a site near the railway line, as the rail traffic will cause heavy vibration, which is not good for the fragile museum objects. It may be noted that the site is away from industrial site to avoid dust and smoke. It is better to avoid river or tank near by, as they will increase the humidity endangering the museum objects. It is better to avoid busy roads to avoid dust and other disturbances. Whenever a museum site is selected at the outer of a town/city it should be kept in mind that it should not be secluded out of the city so that the security is at risk.

Environment

A museum must have a good environment. A good environment means a favourable environment suitable for the objects and the visitors. An environment with out any factory near by will avoid dust and smoke which are very dangerous for the museum objects. The vibration due to factory, railway traffic or vehicular traffic will affect very fragile museum objects. There fore they should be avoided. The museum should be little away from the main road to avoid vibration due to the vehicular traffic. Developing a garden all around

will help in absorbing dust at the same time will maintain a good weather condition while providing an aesthetic look. Trees along the entrance road and along the compound wall without marring the beauty of the building will avoid dust reaching the museum objects. Trees should not touch the museum buildings as they will damage the building by scratching and at the same time squirrels will not enter into the museum through them. Nearby vacant area will safeguard the museum from fire from other buildings. Building at a higher level also will be safety from flood. Landscaping in the campus will avoid dust from reaching the museum objects.

Building

Both in India and abroad very few museums are established in the buildings constructed for museum purpose. Mostly palaces, public halls etc., were used for keeping museums. There was a belief in the nineteenth Century that museums must have monumental buildings to attract the public to visit them. There are many museums both in India and abroad, which have monumental exteriors and ornamental interiors with high ceiling, domes, minarets, large windows, arches, thick walls etc., which were in themselves symbols of culture rather than the centres of culture. What we need today is not a monumental building but a building, which is functional one. There is a trend to preserve the old buildings which talk of our culture and history by protecting them as monuments, that too using the buildings for housing museums. This is a good trend but the old buildings instead of acting as a functional one will create problems of safety and security of the heritage. Mostly in the existing condition of our country, the museums have to be housed in the existing buildings, which were not designed for the purpose of the museum. At times, it is not even possible to make any alterations in the building making it suitable for a museum. But, it is immensely important to plan a museum site, building, environment etc., keeping in mind the present collections and the future expansion. The National Museum, New Delhi, The Children's Museum building in the Government Museum, Chennai are some of the ideal museum buildings in the country.

National Museum in Bangkok is located in an old palace. Since it is a monument, no alterations could be made. Some of the museums are very old e.g. the Indian Museum, Kolkata is situated in a place where no expansion is possible. A lot of expenditure is to be incurred to maintain the building. The Allahabad Museum was housed in a hotel building in 1943. Now it has an ideal building for the museum. The National Museum of Natural History, New Delhi is located in a modern multi-storeyed building. The National Gallery of Modern Art, New Delhi is located in the Jaipur House, which is an old building. These buildings were not constructed for museums. Government Museum, Chennai is located in a building, which has large windows, huge pillars, ventilators, arches etc., which are obstructions in the museum display even though the front building of the Government Museum, Chennai was constructed for the purpose of the museum. Windows, pillars, ventilators etc., should be avoided as far as possible. In order to adapt them to new conditions, false ceiling, panelling and blocking of windows should be carried out.

Museum Architecture

There is a general feeling that the museum building should be imposing, solemn and monumental. In the 19th Century there was a belief that museum should attract people by its appearance. But, the thinking is completely changed now as new building materials and styles are available due to the development in science and technology. The style of the museum building should be at least contemporary, if not ultra modern.

Quite often the old museum buildings are based on historical styles, because most of them came into existence when there was nothing but the derivative in the architects' repertory. The situation was identical all over the world. The first society building called the Pilgrim Hall at Plymouth, Massachusetts, was a Greek Revival Temple of 1824 AD. There after, there is a continuous change in the architectural styles from the Greek to the renaissance to Baroque and Rococo in Europe and America. In India, the vestiges of old Victorian architecture dominated most of the buildings as museums, royal palaces of princely families and in certain cases their forts were and are being used as museums. But old buildings always give problems and affect the whole set up.

The famous old museum buildings such as the British Museum and Victoria and Albert Museum, London; the Royal-Windsor Castle and the Louvre Museum, Paris; the Metropolitan Museum, New York; Indian Museum, Kolkata; Government Museum, Chennai; the Chatrapati Sivaji Museum (Prince of Wales Museum), Mumbai are housing rare collections and the buildings themselves have become antiques.

The National Museum, Taipei (China) was constructed blending the traditional and contemporary architectures. The roof is traditional and the rest is of contemporary architecture. In Malaysia, the architecture of the National Museum is both traditional and modern. The museum buildings at Japan are traditional and functional. A French architect blending the Cambodian and modern styles built a museum building adaptable to contemporary practice, also blending with the atmosphere constructed the Phnom Penh Museum, Cambodia.

Museum architecture should be in such a way that the building serves any type of museum. It is easier to construct a building suitable for the existing collection rather than planning for the collections to be made in the future. A museum architecture today is a combined effort where in the museum authorities have to clearly visualise the specific requirements of a museum according to the nature of collections, programmes and activities to be undertaken and transfer the idea to the architect for a judicious and well planned execution.

In India, almost all the government museums are located in either government buildings or in buildings constructed by the Public Works Department in consultation with the head of the museums. Museum architecture is of a special one, which need to be designed by

an expert who knows about the museum and its activities. Sometimes designs are selected in a competitive way from various designers/architects and work executed by the best architects. For example, when the National Museum, Malaysia was constructed a competition was organised among local architects in order to obtain a proper design for the museum building. A private architect was selected and was sent to see the traditional museum buildings in the country and visit one or two countries abroad before the construction of the museum building.

The area of the museum building can be broadly divided into two categories. They are:

- (i) Public area and
- (ii) Service area or Technical Area

(i) Public Area

The public area is accessible to the public. It includes foyer, galleries, auditorium, lecture room, library, students' room, cafe, museum shop, baby changing room, cloak room, toilets, information desk, telephone booth, Para museums such as friends of the Museum Society room, art club, lifts, escalators, stairs, garden, parking area, etc.

Planning the Public Area

Museum is a public institution and is frequented by visitors. It is better to have compound wall for security but the wall should not form a barrier from viewing the building. If the compound wall has too many gates, it is better to use only one gate all the time and the other gates may be used at an emergency.

Foyer

Foyer is the entrance hall in the museum. It should be large enough to allow large crowds and should lead to the information desk, ticket counter, auditorium, library, lecture room, cafe, museum shop, guide room, cloak room etc., through the galleries. The foyer may have seating arrangements for the visitors.

Information Desk

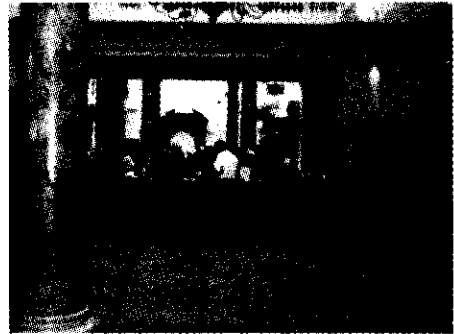
Information desk may be kept in the middle of the foyer so that any body who enters the museum can get the assistance at easy sight. The enquiry counter must have intercom facility so that any official is easily accessible to the visitors in time of need. There should be a coordination between various gallery staff, Curatorial and sterial staff. This can be looked after by the Public Relation Office.



The Foyer of the Louvre Museum
Paris

Ticket Counter

Since museums get a very good income through the sale of tickets, museums set up a ticket counter at the entrance of the museum. Mostly the ticket counters get the location in the foyer or entrance. It is located in such a way that the ticket counter is prominent so as the visitor locates it without any difficulty. The ticket counter is also provided with a ticket-issuing machine, provision to keep the cash collected and proper security to the cashier who is working. It is also better to have printed tickets in case of emergency use. A well designed ticket sometimes becomes a moments to the visitors.



The Information Counter of the V&A Museum, London

Cloak Room

Cloakroom is nowadays getting much importance in Indian museums. The author has utilised the cloak room facility in the Assam State Museum, Guwahati and National Museum, New Delhi. All the national museums have the facility of the cloak rooms in them. There are two types of cloakrooms. They are:

Cloakroom Maintained by the Staff

The museum staff maintains cloakrooms and tokens are issued for the baggage and the visitor feels comfortable during the visit.

Cloakroom Occupied by the Visitor

Enough provision may be kept for providing sufficient space. In this case a cupboard is allotted to a visitor for use along with the key. The visitor after the visit of the museum leaves the key with the staff who looks after such facility. The author has used the facility in one of the Berlin museums.



The Cloak Room in one of the Berlin Museum where the author availed the facility



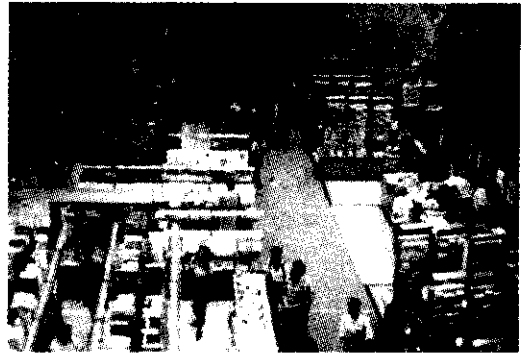
The Cloak Room of the V&A Museum, London

Museum Shop

The management of museum shops involves ethical considerations. The articles on sale and the nature of their promotion should always be in good taste and be consistent with the museum's academic standpoint. The original objects should not be offered for sale, and indeed the merchandise should never be of a nature, which could be interpreted as the wherewithal of a genuine antique dealer.

The museum shop is the outlet for the museum's commercial productions such as scholarly catalogues, temporary exhibition catalogues, colour

reproductions, plaster casts, metal casts, rubber casts, plastic casts, fibre casts, general trade books related to the collections, stationery and gifts, such as calendars, diaries, address books, masks and puzzles. The art and craft works produced by artisans, CDs, cassettes etc., may also be kept on sale.



The Museum Shop of the V&A Museum, London

In the European museums the pricing of museum publications often produces a conflict between the desire to make things available in the museum at the lowest possible price and the necessity to give full trade discounts if any reasonable distribution is to be achieved beyond the museum. Any product for which capital has to be locked up for some time before reasonable returns have been achieved will certainly need a mark up of more than one and a half times cost. In general trade publishing the factor will be at least 4 to 5 times to allow for distribution and trade discount, royalties and general overheads, before a modest profit can be found.

Shop losses are a perennial problem. Though it is difficult to believe-and unpleasant to consider- the statistics in the UK and America shows that more losses are due to staff pilferage than to customers.

In Indian context, the museum shops sell their own reproductions to the public. The Lucknow State Museum is selling plaster casts to other museums and visitors. The National Museum, New Delhi and Indian Museum, Kolkata, Orissa State Museum, Bhubaneswar etc., have got their own modelling units, which cater to the needs of the visiting public. The shop has got the publications also. The Museum Shop in the Government Museum, Chennai has got in it the publications of the museum, picture post cards, photographs, miniature bronze models, metal cast coins, fibre cast models of sculptures of the museum. It is planning to produce masks representing the images, tribal, preserved birds and animals etc., in the museum, which can be taken by the children as souvenirs. There are also proposals to request an non governmental organisation like the Madras Crafts Council to set up a shop in the museum itself for the benefit of the visitors.

Visitors are interested in taking some sweet memories from the museum. Now-a-days museums have museum shops where photographs, slides, souvenirs, publications, playthings etc., are available. It is better that museum shop is located at the entrance or at the exit.

Toilets

Separate toilets should be constructed for both public and staff. It is always better to have the toilet away from the galleries and café. If the museum is having a large area, it is better to have toilet facilities in each floor conveniently and the location should be known through signboards.

Guide Room

The guide room also should be at the foyer so that they are easily available to the public. The guide room must have provision for keeping books for reference. There should also be provision for seating arrangements so that teachers who intend to bring their students for a museum visit can sit and discuss. The room may have some reference books, guide books etc., for the use of the guides and the teachers. The Lucknow State Museum has such a facility.

Library

One of the major requirements of the museum staff and visiting researchers is the provision of a good internal library. Often this is the most neglected aspect of research management, and it undermines the ability to use the collection fully, frustrating comparison and synthesis frequently. Most museums spend pitifully small amounts on their libraries, and many are adequate to answer only minor inquiries. Some rely on the Curator's personal study, while others are fortunate to use the library of the local or district library. Most of the Indian Museums have their own libraries. Library plays an important role in the museum. Library must have separate stacking area and reading area. The library should have provision to have natural light particularly for reading. There should be provision so that staff and public are accessible to the museum library.

Café

Café is an important utility area in a museum. It must be accessible to both the staff and public. It should be easily accessible to the public and the visitors. In the European countries the Café is with in the museum. Some museums have separate café for the staff and the public. Such café undertakes orders for out side functions also. In case only one café is available in the museum, then the staff are given the stuff at concessional rates. In Indian context the café is run either by the museum or by contractors. Most of the Indian museums have café in the campus of the museums. The Chennai Museum had a Cafeteria Square in the Complex. Recently the petty shops were removed and the Madras Crafts Council is going to set up the Museum Shop. In the Salar Jung Museum, Hyderabad, the café is with in the museum. It has got the kitchen and the café can be used for some social functions also. In this way the museum café can be fully utilised in the raising of funds for the museum. The National Museum, New Delhi has a cafeteria in the first floor of the museum, which is out sourced. The departmental canteen is also run inside the museum.

Telephone Room

Many museums have provided telephone facilities to the public. British Museum, London has public telephone booths inside the museums. In the UK museums, telephone booths are available. A telephone booth for the public is a must. This should be well maintained. Provisions may be given to charge mobile phones in such places.

Baby Changing Room or Mother's Room

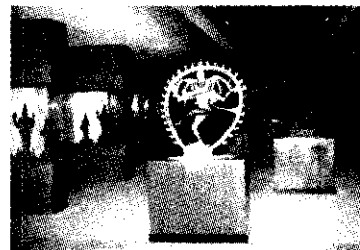
Large museums have baby changing room in order to take rest by mothers and fathers separately, who are accompanied by their children. Many museums call this room as mother's room or father's room depending upon the availability. This is a very important facility required for the mothers or fathers who take their babies.

Staircases / Lifts, Escalators and Corridors

In case the museum building is a multi-storeyed one, then the provision of staircases lifts and corridors are essential. These areas should be relief areas. In the Louvre Museum, Paris many escalators are in use for the visitors. Large lifts and ramps will be of use to transport the objects into the museum or out of the museum. One left is exclusively set apart for handicapped visitors.

Galleries

The construction of the galleries depends on the type and nature of collection and the type of lighting needed for the display of objects. The size of the room and height of the ceiling depends on the nature and dimensions of the object. For small objects, which need show cases, the ceilings can be low and the light should be within the cases separated from the display portion. For objects like sculptures, which are, large and tall halls with high ceiling are needed and artificial light may be allowed. But objects like *rathas*, hut models, dummies to display textiles



The Old Display of Bronzes
Government Museum, Chennai



The New Display of Bronzes
Government Museum, Chennai London

etc., need large halls with high ceiling and artificial light. Such halls are available in museums like National Museum, New Delhi, Assam State Museum, Guwahati, Indian Museum, Kolkata Museum of Mankind, Bhopal where large objects are displayed in the hall itself. The galleries should be so designed that the visitors should not find any difficulty in going from one gallery to the other. The galleries always should be separated from the technical area. In the Government Museum, Chennai it is very difficult for most of the visitors to return back in

the sculpture gallery. Efforts are being made to ease the visitors.

Study Rooms

Museums are for the utility of the public and the researchers. Now a days museums engage themselves very much in research activities. Most of the large Indian museums have been recognised as research institutions by the universities for conducting research leading to

Ph. D. Degree. It is essential to have study room attached to the Curator's room or in the storage for the use of the curatorial staff and the researchers. Even small museums in European countries have got study rooms. The Victoria and Albert Museum, London has got a separate study room along with provision for lecture and screening facilities in the Indian Section.

Seminar Room

Seminar room is another important facility to be provided in a museum. Research is an on going activity, which should be taken care of through out the year. The seminar room is essential for the researchers to share their new findings, the specialists to share their views, students to get their instructions during their visit to the museum. Seminar room has all provisions like writing board, overhead projector, slide projector, LCD projector, preview room, movie projector, video player, wide screen, etc. A seminar room with all facilities is being constructed in the Government Museum, Chennai.

Auditorium

Auditorium has a very important utility in a museum. If the museum is the only public institution in the town, then it will be utilised by many. The auditorium may have projection room, raised stage suitable for multipurpose activities including may be without sloping and provided with movable chairs so that the theatre may be used at times as conference hall, temporary exhibition hall or place for conducting art competitions. E.g. Jahangir Art Gallery,



Museum Theatre, Government Museum,
Chennai

Mumbai. The National Museum, New Delhi; The Salar Jung Museum, Hyderabad etc., have theatres. Government Museum, Chennai has a semi-circular air-conditioned theatre, which is very much used by private individuals also for conducting cultural programmes at nominal charges when the theatre is free. It is in the model of the Globe Theatre, London.

Service Area or Technical Area

The service area includes offices for administration and technical staff, workshops, storage, photographic unit, printing unit, computer room, air conditioning plant room, electrical plant rooms, laboratory, lunch room, union room, cloak room etc.

Planning the Technical Area

There is no fixed rule of distributing the area available between the public and technical areas. Depending on the nature of the museum, collection and the types of activity the space for each category varies. However archaeological museums need more space for the reserve collections. As visual storage is getting prominence, the storage area requirement is high. The technological museums need more space for the display of objects as inter action is a very important activity in a museum.

When we say technical area, we mean area used by the staff of the museum, which is restricted to the visitors. They include the design and display workshops, different scientific workshops viz. the taxidermy room, room for the modelling unit etc., photographic studio, conservation laboratory, publication wing including the press etc., the storage, machine room, Curators' rooms, area of administration etc. While planning utmost care is to be taken depending upon the future development.

The Design and Display Workshop

The design and display workshop is very important in the display of the objects acquired for the museum. The design and display workshop includes the carpentry unit with various cutting and planing equipment, draftsman's workshop, the painting workshop with equipment like sprayers, storage for the raw materials, separate broad entrance for taking in and out the materials etc. If possible trolleys, forklifts etc., may be kept in the workshop to lift big show cases or position the large and heavy objects in the galleries. There should be an entrance to the gallery area from the workshop as the work of the unit always deals with the galleries and exhibitions. Since this unit emanates dust and produces vibration it is always better to keep it in the basement or little away from the galleries to avoid dust and vibration. It is always better to provide ducts to remove the dust and paint gases from the workshop. In case the workshop is in the basement the availability of a ramp or lift is essential for the transportation of the materials or objects or finished goods.



The Author in the Madame Tusauds,
London by the Side of the Wax Model of
Mr. John Major

Conservation Laboratory

Whether a museum is small or large, the availability of a conservation laboratory is essential. Since museums deal with all types of objects, the building design should be in such a way that all facilities should be with in the building. The building must have a large entrance with a ramp to bring in or take out objects. The rooms should be fairly large in size if the objects are of archaeological in nature. There should be provision for ducts to remove the dust and unwanted gases emanated during the conservation treatment. A dark room is necessary for the use of x radiographing, developing films and making photographic prints etc. A machine room provided with air conditioners is necessary for keeping equipment for analysis and examination of objects, which come for treatment. Storage facility for the objects received for treatment is also essential in a laboratory. Besides all this rooms for the staff, library, study room etc., are also required. One has to keep all these in mind when plan for a museum laboratory. Security must be provided for the objects received for conservation. Large galleries or storage may have a conservation facility. The V & A storage has a conservation facility.

Photographic Studio

Photography takes a very important role in a museum. Documentation, security, publication etc., needs photography. Research also needs photography. Since visitors want to take with them photographs or slides as souvenir, it is essential that a museum is either small or large, it must have a photographic unit with a suitable building and facilities. The photographic unit should be closer to the galleries as well as the curatorial area. This laboratory must have a dark room, which is sufficiently large to blow up negatives to print large photographs to display in the galleries. There should be storage to store all the materials related to photography. Since negatives are to be preserved for longer duration it is essential that the photographic storage should be air conditioned round the clock. There may be a large room with proper floodlights to expose objects for taking photographs. It is always better to have a computer in the studio as we have digital cameras now-a-days.

Publication Unit

Publication is very important in a museum. Museums regularly publish handouts, catalogues, journals, monographs, bulletins, newsletters, books, etc. There fore a fairly large museum needs a printing press. Besides these labels are to be printed for display in the galleries. A separate area is required for the publication unit, machine room, store for raw materials, and printed matter. Rooms are required for the staff, who are working in the unit. In the case of letterpress, it is better to keep the machines separately away from the gallery so that the vibration can be avoided.

Administration Area

The area for administration should be separated from the galleries. It should be nearer to the curatorial area as well as the director's office to make the job easier. Since the dealing with the administration is mostly with the curatorial staff, it should have an access to the curatorial area. The director's office should have a provision for a large room for the director, space for the secretary, space for the visitors to sit, room for the disabled etc. The administration staff should be provided place in a large hall so that the administrator can do the whole administration easily.

Public Safety

Public safety is yet another facility to be offered in the museum architecture. The safety of the staff, workers and the visiting public should be given serious considerations. In the U.K., Acts like The Health and Safety at Work Act (1974) are existing to ensure safety to the public. They include the maintenance of safe plant and systems of work, proper arrangements for dealing with dangerous substances, the provision of adequate information, instruction, training and supervision, safe access and exit, and the maintenance of a good working environment and welfare facilities. In the building itself, provision should be given for emergency exit, marking the floor with fluorescent paint with direction so that the trapped public during fire very easily follow the line to get out of the exit and emergency exit. Proper direction boards

are very important. In the Tamil Nadu Archives it has been constructed in such a way that each stack room is provided with an emergency gate.

Loading and Unloading Facilities

In a museum minimum facilities should be provided for the loading and unloading of objects in the museum. Large and unshaped objects always pose problems of handling them. In the building itself provisions for large entrances, ramp, provision of broad and heavy lifts etc., should be made. Also it is better to have equipment such as sack barrows, piano bogies, forklift truck, hydraulic crane etc., depending upon the financial position and staff available in the museum. The Children's Museum and the Zoology Section of the Government Museum, Chennai have ramps to take heavy objects inside the galleries and they also serve as access for the physically handicapped.

Facilities for the Handicapped

Museums should keep in mind the needs of handicapped visitors to the museum. The entrance must have a provision for a ramp, lift, the floors should be even so that the wheel chairs can be taken inside the museum galleries with out any difficulty. If there is raised levels with in a gallery it is better to provide the ramps. In most of the European museums all facilities such as wheel chair, audio players etc., are kept ready for the visitors. Provisions may be made to touch and feel the objects in a museum for the blind. There may be provision of labels in Braille script for the benefit of the blind visitors.

Check List for the Selection of a Site for a Museum Building

1. Whether the site is in a good locality?
2. Whether the site is low-lying one?
3. Whether it is on a high raised land?
4. Whether it is on the bank of a river?
5. Whether the site is near a water irrigation tank?
6. Whether the site on the seashore?
7. Whether the area is cyclone hit one?
8. Whether the site is water stagnant area during rainy season?
9. The environment of the site.
 - a. Industrial area
 - b. Irrigation land
 - c. Residential area
 - d. Busy traffic area
 - e. Riot ridden area
 - f. Railway line is near by
 - g. Airport near by

- h. School play ground near by
 - i. Accessibility
10. Whether large area is available for construction?
 11. Is it a lonely place?
 12. Whether Police Station is located nearby?
 13. Whether the water table is high?
 14. Whether the water is portable?
 15. Whether the soil is good for gardening etc?
 16. Whether the area is approved for construction of building?
 17. Whether there is any plan for the development of the area?
 18. Whether the land is transferred for the purpose of the construction of the museum?

Bibliography

1. Grace Morley, *The Museum and its Functions, Museology and Museum Problems in Pakistan*, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.
2. John, M. A. Thompson and Others, Ed. *Manual of Curatorship*, Butterworths, London, 1984.
3. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
4. Smita J. Baxi and Vinod P. Dwivedi, Ed. *Modern Museum*, Abhinav Publications, New Delhi, 1973.

CHAPTER IV

KINDS OF MUSEUMS

Classification of Museums

There are many types of museums. Museums can be classified either based on their administrative set up or on the nature and scope of their main collections. Based on the administrative set up the museums can be classified as i) National Museums ii) Regional Museums iii) State Museums iv) District Museums v) Site Museums vi) Local Authority Museums vii) University Museums viii) College and School Museums ix) Trustee Museums x) Museums of Business Organisations. In the UK there were over 900 museums and galleries in 1962. At present, there are over 30000 museums in the whole world and over 2500 museums in the UK. In India in 1936 there were 105 museums and today there are about 700 museums.

1. National Museums

National museum represents the artistic and cultural heritage of a country. The Government, through the Department of Natural Heritage funds the national museums and galleries in UK and they hold the national collection of art and antiquities and natural objects. The National museums in India are administered through the department of culture. Therefore, the government of the country is directly or indirectly responsible for its finances and administration. It is essential that the national museums have foreign materials in their collection for the purpose of a comparative study of the art and cultures of different people in the world. According to the modern principle of museology, a national museum must have a universal collection of objects and antiquities. Among the 2500 museums 19 are national museums in the UK. Some of the important National Museums in the globe are National Art Gallery, (London), the Louvre Museum (Paris), the National Gallery (Washington) etc. Among 700 museums in India there are 9 National museums. They are National Museum, New Delhi; National Gallery of Modern Art, New Delhi; National Museum of Natural History, New Delhi; National Science Centre, New Delhi; Indian Museum, Kolkata; Chatrapati Shivaji Museum (Prince of Wales Museum), Mumbai; Salar Jung Museum, Hyderabad; Museum of Man, Bhopal; Allahabad Museum, Allahabad. Indian Museum, Kolkata and Salar Jung Museum, Hyderabad have Boards of Trustees to administer the museums. A representative from the department of culture is included in the Board of Trustees. Allahabad Museum, Allahabad was previously a Corporation Museum and is now a national museum funded and run by the Government of India. It is also has a Board of Trustees.

2. Provincial / Regional Museums

A provincial or a regional museum is a museum established to preserve and interpret the life and culture of a particular province or region by acquiring and protecting the objects

of regional importance. A provincial museum stands between the national and local museums. Such museums are located in the capital cities. They also help smaller museums within their limits by way of offering their expert advice and assisting in many ways. It would be desirable for a provincial museum or regional museum to acquire some materials of different regions of a country in view of presenting a comprehensive picture of the different parts of the nation. In India the Government of India establishes Regional Centres. The National Museum of Natural History has now set up centres at Bhubaneswar, Bhopal and Mysore. The National Science Centre has set up Regional Science Centres in the States.

3. State Museums

Country like India has many States and each State has a State museum. These museums are the States' Central museums. The respective State Governments administer them. These museums acquire artistic and cultural antiquities of the State and also of national and international importance. These State museums are supposed to send their duplicate objects to the museums in the State and also assist them in various ways. Most of the State Museums are art museums and some are multipurpose museums.

4. District Museums

The concept of district museum is not a new one. In 1963, while inaugurating the new building of the State Museum, Lucknow, Pt. Jawaharlal Nehru, the then Prime Minister of India, said that there should be a museum in every village. Probably, the village level museum concept was meant to preserve the local traditions and conserve art and crafts of the rural masses. Many States in India have started district museums. We may see many museums at the district head quarters. Such county museums are seen at the counties in the UK. Many States have realised the vast potentialities of existence of district museums. States like Tamil Nadu, Karnataka, Assam have started district museums. In a Government Order establishing district museum in Salem, Tamilnadu a portion reads as follows: "The district museum must be an epitome of the history, art, culture and natural history of the area covered by the district. It must be a multi-purpose museum so that under one roof a visitor can form an idea of the district in all its varied aspects".

5. Site Museums

The Archaeological Survey of India had set up many site museums at places where many antiquities were found through the excavation of single site. The idea is to display the artistic and cultural heritage of the area pertaining to the early period. By an Act the Archaeological Survey of India set up a Museum Branch and all the site museums are brought under its control. Museums at Nalandha, Saranath, Sanchi, Amaravati, Hambli etc., are some of the examples of site museums. Similarly the State Departments of Archaeology also have set up site museums in order to bring to the notice of the public, the objects excavated from the respective areas. In Tamil Nadu, the State Department of

Archaeology has opened sixteen site museums and are called archaeological repositories. They are at Arcot, Coimbatore, Courtalam, Dharmapuri, GangaikondaCholapuram, Madurai, Ramanathapuram etc.

6. Local Authority Museums

A Local Authority Museum is financed and administered by some local authorities such as corporation, municipality, district administration or city. In the UK there are about 800 local authority museums. Some are even funded by the State. The local authority museum should be the representative of the life of the people of a limited area. Such museums are due to the private donations, excavations or the acquisitions made by the local authority in order to maintain its civic pride. There are many municipal museums in India, but the largest and an outstanding example in its fine building and rich collections is the Allahabad Museum in Uttar Pradesh which is at present a National Museum. The Municipal Museum, Visakapatnam is a small local authority museum. The Kolkata Municipal Corporation runs the Municipal Museum at Kolkata. The Gwalior Municipal Corporation also runs the Municipal Corporation Museum at Gwalior.

7. University Museums

There are museums established to aid teaching and research in the universities. Since the universities run them they are termed as university museums. These museums are financed and administered by the universities. These museums are meant for scholars and students and are specialists in character and are generally not open to general public but are available on request. The University of Pisa established a museum in 1543. The Laden University started a museum in 1575. In this university museum gallery guides were appointed for the first time. The Oxford Ashmolean Museum, the Cambridge Fitz William Museum, the Museum of the University of Michigan, the Museum of Natural History, Paris are some of the University Museums in abroad. Asutosh Museum of Indian Art of the University of Kolkata, Zoological Museum of the Annamalai University are some of the museums in Indian universities. In 1919, Mr. Roy Krishnadoss at Varanasi established the Bharath Kala Bhavan in the Banarus Hindu University. At present there are many university museums, which are supplementing university education. These university museums are at times helped by the Government of India through the grant-in-aid constituted by the department of culture. At present almost all universities have at least one museum in any one of the faculties.

8. College Museums

Many colleges have opened specialised museums for supplementing the college education. The departments of sciences and art establish such museums in the colleges. The colleges finance them. Recently in India the department of culture has come forward to help the college museums. As such recently some colleges in Tamil Nadu have received financial assistance for their improvement. The Museum at St. Joseph's College, Trichi is the

earliest of this type in Tamil Nadu. The Madras Christian College, Tambaram started the earliest College Zoological Museum in Chennai in 1835. A museum was established in St. Xavier's College, Mumbai with the collections of Fr. Heras in 1928. All the Medical Colleges have started their own anatomy museums for the use of the students and scholars. Forest College, Coimbatore has started the Gass Forest Museum. Many of the college museums have got financial assistance from the Government of India for their development. In the UK such museums are given regular financial aid from the Department of Heritage, if they are open to the public also. Recently Sri Vasavi College and Vellalar College for Women, Erode have started museums with the technical assistance of the Department of Museums, Government of Tamilnadu.

9. School Museums

Importance is given to establish museums at school level. In India the Centre for Cultural Resources & Training, New Delhi is training teachers and insisting to start museum corners in schools. The idea behind this is as follows: if you want to educate the children educate the teachers first. So it encourages the teachers by providing training to the teachers. The National Council of Science Museums is trying to start science parks in schools. There are many school museums in Indian schools. The Kalaimagal Kalvi Nilayam, Erode in Tamil Nadu is having a fairly big school museum, which was sufficiently funded by the Government of India. The objects represent the art and culture of the district. Shri Chitrapur Math Museum and Art Gallery in Shiali, Karnataka is a school museum meant for the school children. Now a days many schools conduct annual exhibitions in schools and the students are benefited. Permanent exhibitions are also set up.

10. Private Museums

Private museums are getting popular in the UK. There are over 1100 museums, which don't come under other category and are called independent museums. They are mostly set up as charitable trusts. The Dickens House Museum, the Hayward Gallery, the Royal Academy of Arts, Madame Tusauds are some of the independent museums or galleries in the United Kingdom. They mainly depend on admission charges, donation and other type of self-raising funds. There are a number of private museums in India such as the Maharaja of Jaipur Museum, Jaipur; Raja Dinker Kelkar Museum at Pune; the Birla Archaeological and Cultural Research Institute, Hyderabad; Birla Technological Museum, Pilani, Royal Museum, Tanjore. Private organisations run them. Nowadays, the Government of India is helping financially these private museums to develop them. Dakshinachitra, Muttukkadu in Tamilnadu is one of the complex like the Crafts Museum in New Delhi, which has attracted many to understand the culture of the Southern States.

11. Society/Trustee Museums

Museums administered by an incorporated body are in fact a subdivision of museums under board or trustees. Such institutions are especially popular in the United States of America.

In the United Kingdom also the Trustee museums are getting popular. The government is also providing funds for such museums. Such museums employ Director or Curator to carry out the work in bigger museums. This type of association has been described as a very effective organisational pattern for small museums.

Subject-wise Museums

Museums can be classified based on the nature and scope of their main collections as anthropological, archaeological, art, children, commercial, crafts, educational, folklore, fort, historical, multipurpose, natural history, personalia, science, site, specialised, technological, church, temple, tribal museums etc.

1. Anthropological Museums

Anthropology is the study of man. It can be classified as physical and social anthropology. Ethnology is also a branch of anthropology. Objects related to the study of man are collected in museums and these museums are called anthropological museums. Since the collections are mainly relevant to anthropology, they are considered to be called as anthropological museums. E.g. Museum of Mankind, Bhopal; Ethnographic Museum of the Cultural Research Institute, Kolkata.

2. Archaeological Museums

Archaeology is the study of the ancient past through the material evidence. During the time of Lord Curzon, Sir John Marshal was the Director of Archaeology. He established many archaeological museums in various parts of India. Archaeological objects are housed in many museums. There are museums devoted to only the archaeological objects. The museums attached to the State Archaeology Departments and the Archaeological Survey of India are mainly archaeological museums. E.g. Archaeological Museum, Budh Gaya; Archaeological Museum, Nalanda; Archaeological Site Museum at Ponneri, Tamilnadu.

3. Art Museums

Many museums are devoted to only art. Viz. Classical, contemporary arts. Mainly the art museums were developed by the princely States in India. There are many museums devoted for art in the UK. E.g. Tate Gallery; National Gallery, National Picture Gallery, London. In India too, there are many galleries devoted to art. The National Gallery of Modern Art, New Delhi is exclusively devoted to art in India. The Victoria Memorial Hall, Kolkata is also completely devoted to art. In the European and American museums a great measure of realism is sometimes achieved as in the Philadelphia Museum of Art where the interior of an Indian temple and a *Mandapa* of the Nayak period from Madurai in India are reconstructed in actual size. In the Horniman Museum, London a village life in an Andhra village in India was depicted in live condition in a remarkably realistic way when the author visited the museum in 1994.

4. Children's Museums

Children's Museums are devoted only for the children to visit and enjoy the objects by interaction with the objects. These museums are having mostly interactive exhibits. E.g. Dolls Museum, New Delhi; Bal Bhavan, New Delhi; Nehru Children's Museum, Kolkata; Children's Museum, Chennai. In Chennai the children are allowed to the Children's Museum free of charges. It has now set up a science park attached to the museum. Government of Tamil Nadu is now opening Bal Bhavans in districts for the benefits of children. Some important Children's Museums in India are:

1. Shri Kirdharbhai Sangrahalaya, Amreli-364 601.
2. Children's Museum, Bhavnagar-364 001.
3. Children's Museum, Lucknow.
4. Nehru Children's Museum, Kolkata-700 020.
5. National Children's Museum, New Delhi-110 002.

5. Commercial Museums

Commercial establishments are interested to display their products in museums in order to popularise their products. Industries too do the same. They are either called as commercial or industrial museums. E.g. Commercial and Industrial Museum, Chanter. Now a days many organisations run their commercial establishments in the name of museums. There are industrial institutions, which have started their own museums to popularise their products. E.g. Giri Museum, Chennai is an institution, which hires out furniture. Both the Central and State Governments are motivating the private entrepreneurs to display their products in a site allotted to them in the Tourist Trade Fair. Commercial and Industrial Museum, Kanpur; Government Industrial and Commercial Museum, Kolkata are some of the examples of private museums. Many Art Galleries have sprung up to sell the art pieces while displaying them for public view.

6. Crafts Museums

There are many organisations, which patronise crafts. They collect objects pertaining to the craft. These museums are educating the mass that involves in this profession besides an educational museum to the public. In India Crafts Museums are now-a-days getting importance. The dying crafts are revived and preserved in such museums. E.g. Crafts Museum, New Delhi; DhakshinaChitra, Chennai. Cholamandal Artists' Village in Chennai is encouraging the artists to make the art vibrant. Crafts Museum: Art in Industry Mission, Kolkata is another commercial museum in India.

7. Educational Museums

All the museums have the educational utility. But, some museums have been established exclusively for a particular group in the society. There are museums exclusively for school

children, college students, specialists etc. E.g. Government Educational Museum, Etawah; Geological Museum, Lucknow. All the museums in the schools, colleges, universities are educational museums.

8. Folklore Museums

Folklore is the study of the beliefs, tales etc., of the people. Organisations, which deal with the folklore, have established museums and they are called folklore museums. The Museum of Mankind, a part of the British Museum in London, is a big folklore museum. E.g. Museum of Mankind, Bhopal; Folklore Museum, Mysore.

9. Fort Museums

India is known for its forts. The forts of India are proclaiming the art, architecture, culture etc., of the time at which they were constructed. With the idea of preserving the fort, museums are established inside the forts. They are called as fort museums. E.g. Red Fort Museum, New Delhi; Fort Museum, Chennai; Fort Museum, Tranquebar in Tamilnadu, Fort Museum, Vellore is being organised by the Archaeological Survey of India, Chennai Circle recently.



Fort Museum, Tanquebar

10. Historical Museums

All the museums dealing with the past convey the history of the past. But, there are specific museums just to portray the historical events of the past and are known as historical museums. E.g. Maratha History Museum, Pune; The Asiatic Society Museum, Kolkata.

11. Multi-subject Museums

Museums are becoming multi-subject or multi-disciplinary. Art museums are introducing science facets in them. The Australian Museum, Sydney, Australia has brought in science in the art museum. Most of the museums are having many facets like archaeology, anthropology, art, natural history, technology etc. They are generally termed as multi-purpose museums. E.g. Indian Museum, Kolkata; Government Museum, Chennai; State Museum, Lucknow, Government Museum and Art Gallery, Chandigarh.

12. Natural History Museums

Geology, botany and zoology are the various natural history sciences. There are museums of geology, botany and zoology. Also, there are museums consisting specimens of geology, botany and zoology along with other specimens. They are generally termed as natural history museums. There is a marked emphasis on the exhibits of the conceptual and thematic type although immense dioramas and habitat groups with panoramic painted



National Museum of Natural History
New Delhi

backgrounds and realistically modelled foregrounds still mark a dominant feature of the ecological displays in many large natural history museums of the world such as the American Museum of Natural History, New York; Field Museum of Natural History, Chicago; and Alexander Konig Museum at Bonn in West Germany. E.g. National Museum of Natural History, New Delhi; Natural History Museum, Trivandrum. The National Museum of Natural History, New Delhi has established branch museums in Bhubaneswar, Bhopal and Mysore.

13. Personalia Museums

People want to honour their own leaders even after their death. Lenin's body has been preserved even today. In London, there is a museum called Dickens House Museum with his collection. India is not excluded from this. Museums are established for personalities. They are called personalia museums. There are over 30 personalia museums in India. There are 7 museums only for Gandhiji. E.g. Gandhi Memorial Museum, Madurai; Nehru Memorial Museum and Library, New Delhi. Art Gallery and Krishnamenon Museum, Calicut; Tagore Museum, Kolkata; Srinivasan Math Museum, Chennai. Memorials have been established in memory of great personalities in Tamil Nadu.

14. Science Museums

In around 3rd Century AD, Ptolemy's collection in Alexandria was the first science museum collection. Now a days science museum are getting popular. Museums are trying to introduce science wings in art museums. Scientific facts are introduced through objects. In London, there is a museum exclusively for science called Science Museum. In India the Industrialist Birla established the first Science Museum. The Australian Museum has introduced science wing. The Science Museum at Delhi is one of the best Science Museums in India. The Visveswaraya Technological Museum at Bangalore is a famous science and technological museum. E.g. Forensic Medicine Museum, Lucknow; Periyar Science and Technology Museum, Chennai.

15. Site Museums

Archaeology departments do excavations and the materials excavated are displayed for the public view of the locality in museums in the site. They are called site museums. The idea is that the people of the locality should know their history very well. These museums are generally archaeological museums. Since, they are established at the sites where from the objects were collected or excavated they are called the site museums. Some of the museums are open-air museums. In Tamil Nadu such museums are named as Archaeological Repositories. E.g. Archaeological Museum, Amaravati; Site Museum, Poompuhar.

16. Specialised Museums

Museums are existing all over the world on specialised themes. Museums specialised for transport are called transport museums. Museums specialised on dolls are called dolls museums. Museums specialised on leather are called leather museums. Museums specialising on health are called health museums. Museums specialising on forests are called forest museums. E.g. International Dolls Museum, New Delhi; Rail Transport Museum, New Delhi; Leather Museum, Chennai; Health Museum, Hyderabad; Calico Museum, Ahmadabad; Gems and Jewellery museum, New Delhi; Philatelic Museum, New Delhi, Toilet Museum, New Delhi, Coins Museum, Pune.

17. Technological Museums

Museums are established to educate students and general public on technology. There are museums coming up in all parts of our country on science and technology. E.g. Visvesvarayya Industrial and Technological Museum, Bangalore; Periyar Science and Technology Museum, Chennai. Now a days the National Council for Science Museums (NCSM) are opening Science Centres in important cities and district head quarters.

18. Temple Museums / Church Museums

In the earlier days temples were considered as museums. There are many antiquities of the temple. Now there is a trend to start museums in temples. The temple antiquities are displayed in museums organised by the temples for the benefit of the public. Even though these museums are not popular, slowly the idea is coming up to establish temple museums. E.g. Central Sikh Museum, Amritsar; Sri Meenakshi Sundareswarar Temple Art Museum, Madurai, Temple Museum, Srirangam, Thirupati Tirumalai Devasthanam, Tirupati, Department of Tibetology, Gangtok. These museums charge entry fee from the devotees into these museums. These museums attract a lot of tourists to them. Many church museums are also exist in India.

19. Tribal Museums

Modernisation is coming up at all walks of life. The traditions are slowly forgotten. The modern life is penetrating even among the tribal people living in the hill areas. Many governmental and non-governmental organisations are interested in the preservation of tribal culture. There are many museums specialising on tribal culture, art etc. They are called tribal museums. E.g. Tribal Museum, Uthagamandalam; Tribal Museum, New Delhi.

20. Eco-museums

Eco-museums were designed to preserve economic viability and included facilities to document the areas' histories and for community meetings. These neighbourhood museums gained popularity in the 1960s as agents of change that linked education, culture and community development. The eco-museum concept goes beyond the traditional museum idea of collecting objects to establishing condition for communities to learn about themselves. It builds on

the foundation of the community's collective memory and extends to the documentation of physical sites, traditional ceremonies, and social relationships.

An eco-museum recognises the importance of culture in the development of self-identity and its role in helping a community adjust to rapid change. The eco-museum thus becomes a tool for the economic, social and political growth and development of the Society from which it springs.

List of Museums in India

Agricultural Museums	- 4
Airforce Museum	- 1
Anthropological Museums	- 41
Archaeological Museums	- 160
Archival Museums	- 2
Art Museums	- 88
Botanical Museums	- 18
Calico Museum	- 1
Children's Museums	- 7
Church Museums	- 3
Commercial Museums	- 5
Crafts Museums	- 11
Defence Museums	- 25
Dolls Museum	- 1
Educational Museums	- 36
Fort Museums	- 5
Folklore Museums	- 3
Forest Museums	- 5
Gems and Jewellery Museum	- 1
Geological Museums	- 5
Health Museums	- 4
Historical Museums	- 16
Leather Museums	- 2
Legal Museum	- 1 *(To be open from 9 th April 2005)
Library Museums	- 2
Maritime Museum	- 1
Medical Museums	- 20

Multipurpose Museums	- 115
Natural history Museums	- 7
Numismatic Museum	- 1
Open-air Museums	- 2
Palace Museums	- 3
Personalia Museums	- 28
Philatelic Museum	- 1
Planetariums	- 4
Police Museums	- 2
Rail Museum	- 1
Site Museums	- 17
Science Museums	- 69
Sports Museum	- 1
Temple Museums	- 4
Textile Museums	- 2
Toy Museum	- 1
Transport Museums	- 2
Utensils Museum	- 1
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Bibliography

1. Bedekar, V. H., *New Museology for India*, National Museum Institute of History of Art, Conservation and Museology, National Museum, New Delhi, 1995.
2. David C. Berliner, *Community Hopes to Keep Muse*, New York Times, March 25, 1973.
3. Harinarayana, N., *Setting up a District Museum: An Experience as a Model*, Journal of Indian Museums, Vol. XXXVIII, 1982.
4. John R. Saunders, *Evaluation of Extension Work with Children*, Curator, 2, No. 1, 1959.
5. Markham, S. F., and Hargreaves, H., *The Museums of India*, London, 1936.
6. *Museums Journal*, Volume 66, Number 3, London, December 1966.
7. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
8. Praha Sahasrabudhe, *A Children's Museum for India*, University of Baroda Press, 1941.
9. Ray Chaudhury, M., *Desiderata for a Leather Museum*, University of Baroda Press, 1941.
10. Ronnie Mae Melnick, *A Look at Children's Museums*, Studies in Museology, Vol. IX, 1973-74.
11. Satya Prakash, *Personalia Museums in India: Their Origin, Development and Future Scope*, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Praksshan, Delhi, 1980.
12. Satyamurti, S. T., *My Recent Observations on European and American Museums*, Studies in Museology, Vol. IX, 1973-74.
13. Sivaramamurti, C., *Directory of Museums in India*, New Delhi, 1959.
14. Verma, D. N., *Specialised Museums in India: A Survey*, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Praksshan, Delhi, 1980.
15. Usha Agarwal, *Directory of Museums in India*, Agam Kala Prakashan, New Delhi.
16. Jeyaraj, V., *Museums and Galleries in Tamilnadu*, Journal of Indian Museums, Vol. LIV, New Delhi, 2004.

CHAPTER V

MUSEUM'S FUNCTIONS

Basic Functions in a Museum

The museums what we see today are the result of various developments over three centuries. Starting from the inception of museums, there are three phases of development. The first phase is the store house phase. The second one is the phase of service to a few. The third one is a phase of education to all.

The relevance of museums to the contemporary society should be judged in terms of their ability to become social instruments capable of imparting education, providing entertainment, bringing about desirable changes in human attitudes and enlightening the public at large. In 1895, George Brown Goode, then Assistant Secretary of the Smithsonian Institution, Canada defined museums as "institutions.....for the preservation of those objects which best illustrate the phenomena of nature and the works of man, and the utilisation of these for the increase of knowledge and for the culture and enlightenment of the people.

UNESCO in its publication 'Regional Seminar on the Educational Role of Museums' has defined museum as follows:

A museum is a permanent establishment administered in the general interest, for the purpose of preserving, studying, enhancing by various means and in particular, of exhibiting to the public for its delectation and instructive group of objects and specimens of cultural value; artistic, historical, scientific and technological collections, botanical and zoological gardens and aquariums etc.

The new statutes of the ICOM adopted at the 10th General Conference in Copenhagen in 1974 gives the definition of museum in article 3 as follows:

"A museum is a non-profit making, permanent institution, in the service of society and of its development, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of man and his environment."

A museum is an institution that regularly opens to public and aims at education and healthy recreation. There are about 700 museums in India but those falling in the ambit of the definition of museum, may not be more than 200 museums. The other museums are either the demonstration laboratories or faculty museums accessible to the students.

A museum was considered as a storehouse of cultural, natural and science heritage. In pre-independence era, museum had a bi-fold function i.e. collection and research. One more important function, namely display of objects, was added later on but new and modern museums have generally four-fold activities like collection, research, display and education. Now a day when the aims and objectives of education have been diversified, the museums have become an inevitable source for successful visual education.

Even though the functions of a museum are enormous, we can generally categorise its functions as follows:

1. Acquisition and collection
2. Preservation and conservation
3. Documentation
4. Exhibition/Presentation
5. Education and research
6. Publication
7. Public relation.

Identification

Documentation is crucial to the retrieval of information and protection of cultural objects. Standardised documentation is crucial to the rapid exchange of that information between organisations and nations. Identification of objects is a difficult job and the Getty Conservation Institute, California, USA joining hands with over 1000 organisations such as museums, cultural heritage organisations, police and customs agencies, the art and antique trade, appraisers and the insurance industry in 84 countries has come out with an international standard known as object identification (ID) which is being followed by many organisations all over the world.

Object ID is an international standard for describing art and antiquities. It has been developed through the collaboration of museums, cultural heritage organisations, police and customs agencies, the art and antique trade, appraisers and the insurance industry.

A stolen object is unlikely to be recovered if not adequately described. The object ID checklist helps one provide the information needed to identify an object as ones.

Object ID is easy to use. By just following the check list an object ID will be completed.

Object ID Checklist

Take photographs. Photographs are of vital importance in identifying and recovering stolen objects. In addition to the overall views, take close up of inscriptions, markings, and any damage or repairs. If possible, include a scale or object of known size in the image.

Checklist for Object Identification

Type of Object

What kind of object is it? (E.g. painting, sculpture, coin, mask).

Materials and Techniques

What materials is the object made up of? (E.g. brass, wood, oil on canvas).

How was it made? (E.g. carved, cast, painted).

Measurements

What is the size and/ or weight of the object? Specify which unit of measurement is being used (E.g. centimeter or inch) and to which dimension the measurement refers (E. g. height, width, depth)

Inscription and Markings

Are there any identifying markings, numbers or inscriptions on the objects (E.g. a signature, dedication, title, maker's marks, purity marks, property marks)?

Distinguishing Features

Does the object have any physical characteristics that could help to identify it (E.g. Change, repairs, or manufacturing defects)?

Title

Does the object have any physical characteristics that could help to identify it (E.g. the Scream)?

Subject

What is pictured or represented (E. g. Landscape, battle, woman holding child)?

Date or Period

When was the object made (E.g. 1893, early 17th Century)?

Maker

Do you know who made the object? This may be the name of a known individual (E. g. Raja Raja Varma), a company (E.g. Winson and Newton), or a cultural group (E.g. Hopi).

Write a Short Description

This can also include any additional information, which helps to identify the object (E.g. colour and shape of the object, where it was made)

Keep it Secure

Having documented the object, keep this information in a secured place.

Adopting any method may identify the objects collected for a museum.

- a. Survey questionnaire, field notes
- b. Technique of identification and documentation, dating, use of audio-visual methods
- c. Confidential information.

Survey Questionnaire and Field Notes

In case of objects, which can be very easily identified there, is no need for survey questionnaire or field notes. But is essential in the case of objects which are collected for

the first time and no information is available on them. In such cases survey questionnaire may be prepared and sent to different museums for identification along with the particulars and photographs. The suspected locality may be visited and field notes may be prepared and the facts obtained may be of use for the identification of objects. The author has done much such identification of objects in the museums where he worked as a head of museum.

Techniques of Identification and Documentation

There are various means of identification of the objects in the possession of a museum. At times the museum may receive collections which may pose problem of identification. In such cases the museum may arrange the experts to identify them. Many reference books may be utilised to identify them. There are museums, which extends services in identifying the objects at nominal charges. The author had sought the help of experts in many cases in the identification of objects, deciphering epigraphical details, iconographical details etc.

Dating of Antiquities

Most of the antiquities are dated through the inscriptions available on them or through the associated finds in an excavation. Whatever may be the method of dating, date of antiquities is very essential to get the fullest information through them.

There are various methods of dating of antiquities. Here, I have outlined a few methods of dating of antiquities.

Dendro-chronological Dating

Dendro-chronology may be defined as the study of the chronological sequence of annual growth rings in trees. Basic to a tree-ring chronology is the fact that each consecutive annual growth ring is assigned to the calendar year in which it was formed. The outermost ring corresponds to the year of cutting the tree. When the quality of cross dating has been established and modern chronology developed for a given area, it is possible to date tree-ring material either wood or charcoal, from earliest periods.

Effectiveness of dendro-chronology as a dating method depends on having (1) suitable sample of non-complacent wood. Normally 100 + rings are needed unless there is a particularly distinctive pattern. (2), a master chronology for that species in that region.

A dendro date will give an extremely accurate result for individual rings, giving a date accurate to a particular season of a particular year.

Radio Carbon Dating

^{14}C are formed continuously in the upper atmosphere by the action of cosmic rays on ^{14}N . This ^{14}C is rapidly oxidised to ^{14}CO and mixed into the carbon dioxide, including ^{14}C , is absorbed into plants via photosynthesis. From plants is passed through the food chain to the entire biosphere. It is also absorbed into the oceans, but more slowly, and with less rapid mixing.

Three forms (isotopes) of carbon occur in nature, ^{12}C , ^{13}C and ^{14}C . Of these ^{12}C and ^{13}C are stable, but ^{14}C is radioactive. This means that it decays spontaneously at a measurable date, defined by the half-life, the time taken for half of any amount to decay away. This is a constant specific to each radioactive isotope.

Since ^{14}C is continually being formed and decaying only a certain amount will be in the atmosphere at any one time. While a plant or animal is alive it will constantly replenish its content of ^{14}C via the food chain and remain in equilibrium within the atmospheric amount.

Once it dies, ^{14}C lost by decay will no longer be replaced and the amount trapped in its tissues will decline.

Since it is possible to measure the amount of ^{14}C remaining in a sample and rate of decay is known, if the original ^{14}C content is also known calculating the elapsed time since death is mathematically simple.

By this method bone, ivory, antler, wood, charcoal, textile, grain, plant materials can be dated. The actual weight needed depends on the age of the sample, the exact carbon content and the precision required. It ranges from 10 gms to 500 gms.

Carbon containing contamination affects the date. Objects, which are consolidated with organic consolidants, are not suitable. All radio carbon results are quoted with error terms, usually in the range + 50 - 100 years.

Thermoluminescence

Thermoluminescence (TL) is a property of crystalline materials, which have been exposed to ionising radiation. When such materials are heated they emit both the incandescence normally associated with heat and a small amount of additional light is related to the amount of radiation to which the material has been exposed since it was last heated and hence to the elapsed time.

This method of dating was first developed for use with pottery, but has now been extended to other substances. In pottery, TL builds up in the quartz and feldspar crystals, which occur naturally in clay. These receive ionising radiation, most from the alpha, beta and gamma emissions from the decay of uranium, thorium and potassium found throughout the soil and in the pottery itself. As this radiation travels through the crystals it releases free electrons. Some of these become trapped in defects in the crystal lattice. Depending on the nature of the defects these electrons can remain trapped over geological time, thus 'zeroing' the time clock. Subsequent exposure to radiation will result in a slow build up of TL with the amount depending on the elapsed time, the radiation dose from the surroundings and the sensitivity of the material. If both dose rate and sensitivity can be measured or estimated and the amount of TL present determined it should be possible to calculate the time since the last firing. In art historical terms TL is most often used as

an authentication technique on pottery.

To produce precise TL dates requires an accurate assessment of the natural radiation dose to which the sample has been exposed. In an archaeological context this is determined by in situ measurements with a gamma spectrometer or by burying a small, radiation sensitive, capsule for a known length of time. For authenticity work on pottery, where the burial environment is not known, these levels have to be estimated and the result is correspondingly less precise.

Thermoluminescence dating can be applied to pottery, burnt flint, volcanic materials, baked clay, kilns, hearths, core materials in metal work in case of the hollow cast bronze icons, etc.

Sample size varies very much with material and circumstances, but between 50 and 100 mg are needed for an authenticity test.

The ultimate precision will depend on the characteristics of the materials and the precision with which the environmental dose rate can be determined, but results are normally quoted to +5% to 10% or around + 25% for authenticities.

Use of Audio-visual Methods

In identification of museum objects the use of audio-visual methods are useful. Many research programmes are under progress on the documentation of the objects both by visual means and audio means. This information may be used in the identification of the objects in the museum.

DOCUMENTATION

The museum collections are either from natural and or man-made environments. Whenever any work of art or scientific specimen, or historical object enters a museum, it is obvious that it must be identified immediately by some clear and ready means and that its entry and subsequent disposition must be accurately and permanently recorded. Preserving the non-intrinsic information about an object, such as where it comes from, who found or used it, and what it was used for is the responsibility of the institution that preserves/ keeps it. Therefore, the basic responsibility of a museum is the recording of all the objects that enter or leave the museum along with their intangible heritage.

In general objects are received in a museum through field collection, treasure-trove, for study or examination, as gifts or purchases offered to the permanent collection, as loans for extended periods, or as loans to special exhibitions. Many objects at times comes through confiscation, if the museum is a government administered.

The term documentation literally means preparation of records and documents. In museological terms it includes the process of accessioning, card indexing, cataloguing and photographing along with digital documentation.

The Function of Documentation

Documentation is the fundamental activity in a museum and is used as a basic source of information on the collection. Comprehensive documentation is the important activity and is essential

1. For the effective management of collection, encompassing storage, security, auditing and insurance.
2. To formulate acquisition policies by identifying the scope and limitations of the collection.
3. To enable the collections to be researched and published.
4. To provide information such as radiographs, metallorgraphs, analytical report etc., for authentication at the time of theft/ retrieval etc.

Principles of Documentation

Data Standads

Basically, the standard supplies a format, which is a hierarchical organisation of museum data concepts, and a set of recommendations for slotting pieces of museum data into the various concept headings in the concept. The standard form for the recording of museum data is known as the data standard.

Features of a Documentation System

The aims of museum documentation system are to preserve all known information about an object and to help satisfy the needs of the user, whether he is a Curator, researcher,

or a visitor. There are three types of documentation, which comprise a comprehensive museum record.

Initial documentation is one, which is made on the entry of the object into the museum. Item documentation is the full record of all information about the object.

Central documentation is one, which records the movement and location of the object. This is an essential pool for collection management, which helps the Curator in the day to day administration.

Registration

The Antiquities and Treasures Act of 1972 was passed with the double object of registering all antiquities in the country and to regulate them. Section 14 (1) of the Act provides for the registration of antiquities as specified from time to time by government before the registering officer for the grant of a certificate of registration. The procedure of recording the particulars of objects in a museum is called museum registration. Large museums have a special section / registration department to carry out the process of registration and other related works like arranging insurance, supervising packing and unpacking, keeping track of location of objects, whether on exhibition or in storage, and in general taking responsibility for the collections' safe handling. In small museums the Curator has to carry out this entire job single-handed.

In general registration is nothing but the process of accessioning, card indexing, photographing and numbering of museum objects and if necessary digitising them.

Creating an Object Record

The Object Enters the Museum

Initial documentation is the mechanism used to cope with every object entering the museum, whether temporarily or permanently. Loans, identifications and acquisitions should be assigned an initial serial number, which links the object to its associated information. The initial record may be made in a daybook or in an entry form in triplicate, one copy to the depositor as a receipt, one copy with the object and the third with the museum file. The record consists of date, method of receipt, from whom received, basic identification and description, provenance, method of collection, history of the object, storage location, disposal (including permanent accession number if object is detained), and the number of the staff who received it. Since its number identifies each object in a museum, the first step in planning registration is the determination of the numbering system.

Accessioning

Once an object is acquired for the museum, an accession number is assigned to it, and marked on it in a permanent way. This process is called accessioning. The accession number may be date-linked, prefixed or suffixed by a departmental letter code. It should

never be re-used even if the object is disposed off. Specimen files are also kept. Some museums have bound volumes called accession registers in which the entries are attested by the head of the institution. In simple words, accessioning is nothing but the process of entering the museum objects in the registers in the museological terminology.

Accession Number

Each object, when it is entered in the Accession Register, is allotted a number, which is known as accession number. The international practice in this regard is to give first the year of acquisition and then the serial number. E.g. The number 97.10 means museum object acquired in the year 1997 and having the serial number 10. If there are seven objects related to that particular object but individual, then the first in the series can be given the number 97.10/1.

Some times a group or group of objects in the older collections, which neither bear any accession number nor have any written records in the museum, present difficulty for registration. In such cases most of the museums have chosen to mark the object in its serial number within the group preceded by an arbitrary chosen letter, i.e. X, which would indicate the unknown part of the record. In other words the number X 15 would refer to the fifteenth object of the group of incompletely documented material. When the information is complete, it may be re-numbered in accordance with the actual date.

Materials, which are received as long term loans also, should be properly documented. The second object of the eighth loan in the year 1997 may be given the accession number 8.1997.2.prefix like L to denote Loan, EL to denote Extended Loan and TL to denote Temporary Loans. The other method is to maintain a separate loan register for such objects. Government Museum, Chennai has a loan register which is attested by the head of the institution when some objects are loaned.

Indexing

Indexing is a process in which entries about an object are made in a card in sequence, which acts as a directory. The index cards provide information about the objects to any body who wants to have information about the object. This indexing is nowadays done using a computer.

Cataloguing

Cataloguing of objects in a museum is important for proper communication between the objects and the interested interactor. Cataloguing is one of the important activities of a museum or gallery to make known information about its collection and is the important need in the field of scholarship.

Permanent Record

Records consisting of all information about the object, including cross-references to other files, such as conservation treatment records, photographic negative numbers etc., is called the permanent record. The duplicate cards are prepared and kept for reference. From this record, catalogues and indices may be produced to help staff answer enquiries about the history and contents of the collection. Using manual methods, five indices such as object name index, object period index, collection place name index, donor index and storage location index are prepared for easy reference.

Measuring

Measuring is important both for identification and for calculating storage or space requirements. In general, the dimensions such as height, length, width, depth, diameter etc., are all taken at the greatest point. If irregular, the shape should be mentioned. The information will be useful at the time of loss or theft. This is a must for the retrieval of the object when lost.

Marking

Marking museum objects is obviously an important task in all museums for it is by the number that an accessioned object is easily identified in the records. However, before an object is accessioned a preliminary identification must be established.

Temporary marks may be done on paper stickers, tags or adhesive tape. But, care should be taken whenever adhesive tapes are used to mark an object as it may leave stains on the objects.

Marks on objects in the permanent collection should be permanent, clear, and readily accessible, but so placed that they will not distract from the appearance of the object. There are different methods of markings done on the objects depending upon the type of the object. Oil colours are used to mark with brush in the case of glass, metal, ceramics, stone, minerals, wood etc. Some times the numbers are marked in different colours on small rectangle of enamel paint. It is always desirable to choose the particular side of the object for marking. Cloth pieces marked with permanent ink is stitched to the textiles.

Photographing

Each object received in a museum should be photographed for its identification, study and for the retrieval of the object at the time of its loss or theft. Black and white and colour prints and slides are made available for easy reference for study and reference at any moment. IR Photography will be of help to identify its authenticity. Nowadays digital cameras are of much use and the digitised images can be stored in the computers along with the data of the objects. This is highly useful for publication.

Registers and Records

A register by definition is an official written record and to accession is to record an increase or augmentation. Museum records consist of many registers, catalogues, cards etc. They are the daybook, accession register, catalogue, card indices, historical file etc.

The Day Book

Objects collected by field trip, exploration, treasure-trove Act etc., entered into the museum registers directly as they belong to the museum. But objects received for purchase cannot be entered into the register but should be entered in to a book called the Day Book. Only after the approval of the committee or the Director the object will be recorded in the inventory. The daybook may have the following details.

1. Date of receipt
2. Number
3. Description
4. Name and full address of the donor, vendor or lender.
5. Method of acquisition (gift, loan or purchase)
6. Type of disposal and date
7. Received by
8. Date of return and signature of the owner, if rejected. Record of the permanent collections of a museum, it is very important that it should be preserved very carefully. Duplicate register kept away from the museum under safe custody will be good as it is useful at the time of loss of the register and any alterations or tampering can be avoided.

Normally an Accession Register intended for a museum having a variety of different types of material in its collections has these column headings.

1. Serial number
2. Catalogue number
3. Other number
4. Name
5. Maker / Artist if known, his dates and tribe or community, or school if an art work.
6. Material
7. Dimensions
8. Date
9. Description
10. Source of acquisition
11. Price if purchased or estimated value if otherwise acquired
12. Condition
13. Remarks.

Historical File

Museums have correspondence in the process of acquiring objects. All correspondences, invoice and bills in case if the objects are purchased, reprints, reference of publication about the object, full record of treatment, opinions of the experts etc., pertaining to the object are kept in a file and preserved. These files are called Historical Files. They contain all rudimentary information starting from its early history to till date. In the European countries historical files are given importance and are kept with the Curators. But in Indian context these are preserved in the museum archives.

Index Cards

An index is an ordered sequence of entries acting as a directory to one or more aspects of a catalogue. To facilitate the research work and day to day museum working, index-cards provide basic information about the museum objects along with small photographs. These cards are arranged according to either accession numbers or art schools or regions etc. A museum has a number of indices to act as information directories, and a number of indices a museum can produce is constrained by factors such as staff, time, cost and storage space. Few museums have the resources to produce more than five manual indices, and the ones which should answer most collection enquiries are: an object name index, object period index, collection place-name index, donor index and storage location index.

Catalogue Cards

Cataloguing is a curatorial function, but catalogue cards are frequently made in the registration department, if there is a separate registration department, on the basis of information supplied or approved by the Curators. Cataloguing is nothing but the minimum obligation of a museum or gallery to make known information about what it holds, and is the prime and immediate need in the field of scholarship. Cataloguing is a legal obligation to the museums. Cataloguing of objects in a museum is all the more important for proper communication between on museum and the other, as also from each museum to other sister institutions and scholars who might be interested in them. Hence, it is also desirable to maintain a minimum standard of uniformity in the listing and cataloguing of the museum objects. Cataloguing is done nowadays using computers and the details can go direct to publication making the process easier.

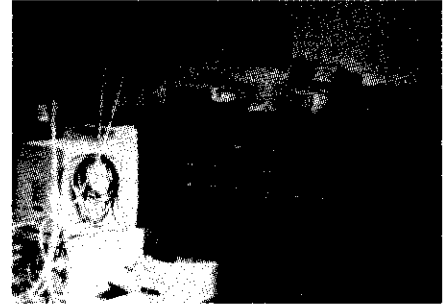
Simple lists of exhibits do not develop knowledge to any great extent and only describing dimensions, materials used in manufacture and provenance, but also details of methods of use and the dates of manufacture and operation. They must also indicate the location and availability of the collection for further research. Research needs more than the non-intensive cataloguing forced on the bulk of collections by the desperate need to remove the backlog or to keep pace with the arrival of new materials from rescue excavations.

Catalogue cards are loose sheets, which contains various columns to know the information easily. Certain museums prepare different coloured cards for permanent collections and loaned objects so that the objects can be distinguished at the first sight.

The various registers available in a museum are General Accession Register, Departmental Accession Register, Register for Loans, Movement Register, Gallery Inspection Register etc.

Computer Based Documentation

Computers are used in museums in the documentation of the museum objects. In the European and American museums computers are used as an aid to museum documentation. Some museums in the UK give the documentation work to the outside agencies. But there is a risk of the information to be leaked out. Some museums have microcomputers and their own staff do the documentation. Now a days almost all the European museums have their own computer based documentation and the retrieval of the information is very fast. The information can also be put in the Internet and is accessible to the users or scholars. Nowadays some Indian museums have got computer documentation and the information of some of the objects is available in the websites. Each museum prepares its own software to document the objects.



Old and Computerised Documentation
at the Cambridge University Museum,
Cambridge

ROLO System

ROLO stands for Recording Object Locations On-line. The Computer Section of the Victoria and Albert Museum, London developed this computer application in 1994 itself to provide the following:

1. A complete inventory of the collections and a means of stocktaking.
2. A quicker means of changing locations of a large number of objects.
3. A first step towards automation of the museum information about objects.

The information entered in a ROLO record consists of the museum number, object type, classification and location of the object. A separate record is made for each separate part of an object.

The object type field is used to enter the object name, i.e. the term which best represents an object, e.g. Pot, Bronze Icon.

Collection departments to meet their own requirements for describing or grouping objects use the classification field.

The location field identifies the location of the object.

When a record is created or updated, the system attaches to it the date and collection code and initials.

Curators can use the ROLO database in the following way:

1. To find the location of any object by its museum number.
2. To retrieve the records in museum number order.
3. To retrieve the records for the objects in a given location.
4. To retrieve the records for objects of a given object type.
5. To retrieve a set of records and update the location of each record individually, without having to call up the records one at a time.
6. To perform global location updates when large number of objects are moved from one location to another.
7. To retrieve list of terms used for object type, classification and location together with the number of items each term occurs.

Records retrieved can be viewed one at a time or in list form. Lists can be printed or downloaded on to floppies or CDs for word processing.

ELISE-An Online Image Retrieval System

The Electronic Library (EL) is a modern concept beyond traditional perceptions is conceived as a teaching, learning and study environment in which information is held primarily in electronic form. One of the forms is ELISE, which means Electronic Library Image Service for Europe. This will provide access to full colour image information banks held in three member states UK, France and The Netherlands. Museums are making their own methods of documentation.

Virtual Museum

Museums are available on the Internet. Simply, the Internet is a large set of computer networks that communicate with each other, often over telephone lines. It enables companies, organisations, individuals, schools, and governments to share information across the world.

The Internet includes the World Wide Web, which enables one to see documents in richly formatted text and pictures. Many web pages link to other web pages, so it is easy to browse, or surf, a large amount of information by just clicking with the computer mouse. The Chennai Museum is in the Web. Many video clippings are also available to browse.

**MASTER INFORMATION CARD OF THE GOVERNMENT MUSEUM AND ART
GALLERY (MIC-GOMAG) CHANDIGARH, INDIA**

(A computer based documentation system of works of art in multimedia)

ACADEMIC

1. Category of object:
2. Title:
3. Medium/material/technique:
4. Provenance:
5. Date/period:
6. Style/school:
7. Tribe/dynasty/community/patron:
8. Artist:
9. Dimension/weight/denomination (coin):
10. Brief description:
11. Inscription:
12. Original source of information:
13. Published source references:
14. Remarks/comments:

ADMINISTRATIVE

1. Unit No.:
2. Entry register No.:
3. Accession register No.:
4. Source:
5. Mode of acquisition:
6. Price/ value:
7. Photo negative/ slide No:
8. Photograph/video/audio cassette No:
9. Location:
10. Condition of the objects:
11. Restoration done, if any:
12. Last update:

Photograph:

Catalogued by: Condition report by: Photographed by: Supervised by:

Accessioning Check List:

1. From whom received :
2. Method of acquisition :
3. Purchase – File number :
4. Gift :
5. Bequest :
6. Transfer :
7. Loan- permanent / temporary :
8. Nature of the object :
9. Art :
10. Archaeology :
11. Numismatics :
12. Natural History :
13. Scientific :
14. Quantity of specimens :
15. Number :
16. Weight :
17. Volume :
18. Date of receipt :
19. Name of the receiver with initials :
20. Whether receipt acknowledged :
21. Whether the objects is entered in the register :
22. Whether measurements taken and measured :
23. Whether appraised :
24. Whether numbered :
25. Whether photographed :
26. Black and white :
27. Colour :
28. Slide :
29. Storage or gallery location assigned :
30. Notes and remarks :

De-accessioning or Disposal of Museum Objects

Whenever an object is removed permanently from the collection, it is de-accessioned or cancelled. The object may be retired or withdrawn for a variety of reasons such as deterioration or loss or transferred as gift, sale or exchange. In the department of museums in Tamil Nadu whenever a district museum is started objects from the headquarters museum are transferred to it and the object in the head quarters museum is de-accessioned.

Disposal Policy

It is appreciable if every museum has its own disposal policy. In general the various methods of disposal of museum objects are:

1. Out right sale
2. Credit against future purchase
3. Gift and
4. Destruction.

In the case of out right sale of the museum objects it is good to do so by public auction. If there are branch museums or sister institutions then the objects may be sold to them or transferred giving priority to them. The Director should approve the method of disposal. In case of the government organisations the disposal should be done only after getting the approval of the government. Even though it is a laborious process, it saves the museum property. In the case of auction the staff of the museum should not participate in the auction.

Check-list for Disposal of Museum Objects

1. Whether the museum has the legal right to dispose any museum object?
2. The reference to the legal right of the museum in this regard.
3. The nature of the acquisition of the museum object.
4. Reference to the acquisition of the object.
5. Whether the Curator has sent the proposal for the disposal of the museum material?
6. Whether the technical head has agreed the proposal of the Curator in this regard?
7. Whether the head of the museum or the Director has agreed in this matter?
8. What is the type of disposal?

Bibliography

1. Andrew Roberts, D., *The Development of Computerised Documentation*, Ed. John. M. A. Thompson, Butterworths, 1985.
2. Dorothy H. Dudley, Irma Bezald Wilkinson and others, *Museum Registration Methods*, Washington, 1968.
3. Grace Morley, *the Museum and its Functions*, *Museology and Museum Problems in Pakistan*, Ed. Saifar Rahman Dar.
4. John, K. T., *Registration and Documentation in Indian Museums*, *Museums and Museology New Horizons*, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
5. Object ID, Getty Conservation Institute, USA.
6. Sheila M. Stone, *Documenting Collections*, *Manual of Curatorship*, Ed. John M. A. Thompson, Butterworths, 1985.

MANAGEMENT OF COLLECTIONS

Any object small or big, rare or common, which takes a place in the museum, qualifies itself as a museum object. The collection policy of a museum rests upon the scope and must be determined by its primary nature and its secondary limitation. The primary nature is the specialisation of the museum. The secondary limitation, which a museum will fix for its collection, is a geographical boundary or a political division, which it stands for. When the scope of acquisition is once established it is the duty of the head of the institution to go on by the guidelines fixed for the collection.

Collection Policy

Depending upon the finance, staff, display area and storage facilities the collection policy differs from museum to museum. Each museum can set up its own collection policy. If it is a specialised museum its aim is getting more and more objects of its kind. In a multipurpose museum it is better to establish guidelines as to what types of material are to be collected and secondly, there is a need for policy to be revived from time to time. A national museum should collect the supreme examples, which illustrate a particular discipline nationally. A regional museum must collect the objects pertaining to the region. A district museum may collect the objects of all types of the district. A specialised museum should collect objects pertaining to the subject from any part of the world. Irrelevant objects also may be collected and the same may be kept on reserve as they may be exchanged when time comes. Objects of unknown period, locality etc., will be of less importance. Part of an object will also pose problems. The objects collected should have a clear ownership of the museum. Illegal ownership will cause a hell of problems in the later stage. Adequate collecting involves good public relations, active fieldwork and enough purchase funds as well as dynamic leadership and a museum programme worthy of a donor's support. If the collected materials are not displayed, if no storage facility is available and if the staff are not interested to make it vibrant, the museum will be static. The collection policy has to be changed from time to time.

Methods of Collection

Acquiring objects for a museum is the foremost task of a museum to establish it. There are many ways of collection of museum objects. The methods also vary from museum to museum. Field collection, excavation, treasure-troves: gifts and bequests, purchase, loan, exchange, confiscation, transfer, repatriation etc., are some of the common methods of acquisition of objects for a museum.

Field Collection

Field collection is very important in the sense that the locality of the object is known. The archaeology departments or the anthropological departments are making area survey. Surface collection is made in most of the areas. Soon after a good rain will reveal many

objects such as coins, beads, and sherds.

An anthropologist surveys tribal area and collects objects. A zoologist collects zoological collections from seashore and forests. He used to get license from the government to catch some birds, animals, marine objects and stuff them for display. A botanist collects specimens from forest area and preserves them to display. A geologist collects minerals, rocks, slags, fossils etc., as surface collection from different areas. Depending upon the interest the collection increases through field collection. Archaeological collections such as sculptures, stone inscriptions can be collected only by government museums, as the permission has to be got from the Collector of the district. A group of students may be taken to the field and collection can be made. The students may be taken around sites, which are rich in the ancient materials to collect them. It is the experience of the author who organised many trips to excavation-sites, monuments, ancient habitation sites, riverbeds etc., and has enriched the museum collection in many ways. The loose finds of archaeological objects are brought to the knowledge of the Collector of the district concerned and sought his permission to allot them to the museum to preserve them.

Collection of natural history specimens is made by field visits. In those days there were licences issued to the natural history Curators to shoot birds for stuffing and keeping in museums. The botanical specimens were also collected by undertaking tours to different forests. Visiting various quarries and regions where the specimens are available also makes geological collections. The fossils are also available in the quarries.

Excavations

Excavation is a scientific method of revealing the buried objects under earth. Excavation is one of the methods of acquisition of ancient objects in the museums. Some museums are empowered by the Government of India to undertake excavation if they have qualified archaeologist and add the objects thus obtained in the collection of the museum. Chennai museum once excavated and objects were acquired. Anyhow, in India any department cannot undertake excavation unless the permission is obtained from the Director General of Archaeology, Archaeological Survey of India, New Delhi.

Recommendation on International Principles Applicable to Archaeological Excavations

The UNESCO General Conference at its 9th Session at New Delhi on 5th December 1956 adopted the recommendation on international principles applicable to archaeological excavations.

Archaeological Excavations

Archaeological excavation means any research aimed at the discovery of objects of archaeological character, whether such research involves digging of the ground or systematic exploration of its surface or is carried out on the bed or in the subsoil of inland or

territorial waters of a member State. The Member State can adopt the most appropriate measure to protect the excavated cultural Heritage.

General Principles

Each member State should ensure the protection of its archaeological heritage, taking fully into account problems arising in connection with excavations and in conformity with the provisions of the present recommendation.

The competent authority must make appropriate measures to educate the public to arouse a sense of protecting the Cultural Heritage.

Regulations Governing Excavations and International Collaboration

The Member States should make provisions to make the excavation as liberal as possible even with the agency, qualified individual or institution irrespective of nationality to apply on an equal footing for the concession to excavate. The authority must have provisions to preserve the finds of the excavated objects. The results of the excavation should be published within the stipulated period.

Trade in Antiquities

The Member State should adopt regulations to govern the trade of antiquities. On any account the smuggling of the excavated objects should be stopped.

Repression of Clandestine Excavations and of the Illicit Export of Archaeological Finds

Each Member State should take all necessary measures to prevent clandestine excavation and prevent the export of objects thus obtained. Museums should not acquire such objects. When archaeological objects are purchased for the museums, adequate details allowing them to be identified and indicating the manner of their acquisition should be published as soon as possible. In case of illicit export of excavated objects, it is desirable that each Member State should take the necessary measures to ensure their recovery.

Excavation in Occupied Territory

During the occupation in a territory during the army conflict no excavation should be carried out in the occupied territory.

Bilateral Agreements

Member States when ever necessary or desirable should conclude bilateral agreements to deal with matters of common interest arising out of the application of the present Recommendation.

Treasure-trove

According to the Indian Treasure-trove Act, 1878, buried objects when exposed from the ground belong the Government. These objects when exposed accidentally they are brought to the knowledge of the Collector of the district. The Collector informs the head of the department of museums and if he requires the objects, the treasure-trove objects are sent to the museum for examination. Compensation is given to the person who found out the treasure as well as the owner of the land. Such facilities are available only to the government museums. The Government Museum, Chennai is augmenting its collection by the Treasure-trove objects. The important additions to the bronze collection are the Buddhist sculptures from Nagappattinam, Velankanni Nataraja etc.

Gifts and Bequests

In the European countries the individuals made the collections and they were later gifted to the museums. The British Museum came into existence by the bequest of Sir Hans Sloane. Fitz William Museum was born by the bequest of the Count Fitz William of Cambridgeshire. In England art pieces and antiquities are accepted it may not be possible to fulfil the wishes of the donors. It is difficult for any progressive museum to fulfil the desire of the donor to exhibit all his material at one place or to keep it on display at all times. Only valuable gifts no restrictions should be encouraged. Salar Jung Museum, Hyderabad



Gifting Manuscripts to the Palani Museum

is a museum established out of the collection of Salar Jung III and the gifts from well wishers and art collectors of the area. In Tamil Nadu many gifts are received from local supporters and benefactors to the museums. The author has collected many objects through gifts by his personal requests through the media. He also organised many meetings with the help of the District Collector at the head quarters of the divisions of the districts and many objects were received as gifts. Some organisations also collect objects and give them as gifts. Prof. K.A. Thirugnanasampandam, Erode, Erode district and many others gave coin collections to the Government Museum, Erode and Vellore.

Purchase of Objects

Museums enrich their collections by purchase. Especially, museums other than government museums collect objects through purchase. Every museum allocates funds for the purchase of museum objects. Small museums purchase objects as and when objects come for sale. The Curator purchases objects of the interest of the museum when he undertakes tour to different places. But, larger museums cannot do mainly like this. Even in Chennai Government Museum, when Dr. N. Devasahayam, our then Curator for Anthropology

undertook tour to tribal areas he used to collect objects through purchase from the tribals at very nominal rates. It is the duty of the museum to set up Objects Purchase Committee or Art Purchase Committee to select good pieces according to the policy and programme of the museum and make the purchase at reasonable charges. The Committee consists of experts in the field. Any object before it is brought into museum collection, the opinion of the expert in the field should be sought for the genuineness and proposed value of the specimen. Whenever objects are selected it should be kept in mind that the object is interesting and representative of the region or speciality. The committee or the Curator must examine the registration certificates issued by Registering Officers in the districts. Before making the final payment, attempts also may be made to verify the source of the objects. If necessary records of theft are available with the Police, Central Bureau of Investigation and Archaeological Survey of India they may be verified.

Transfer of Objects

Most of the government buildings possess antiquities. There is no provision for the preservation of the antiquities in their possession and also no trained personnel to preserve them. There fore the government transfers the antiquities to the museums. In the past the objects of the Thanjavur Art Gallery were transferred to Chennai Museum. The arms of the Arni Jagirthars from the Sathyavijayanagaram in Thiruvannamalai district were transferred to the Government Museum, Vellore. The temple car wood carvings from Avinashi, Coimbatore district were given to the Government Museum, Coimbatore in Tamilnadu.

Confiscation of Objects

Art and cultural objects from temples and other sites are illegally removed by contraband dealers and sold to foreign agencies. These objects are legally confiscated by the Idol Wing of the Police Department and handed over to the Court. Finally they are handed over to the museums department in Tamil Nadu. In this way the Department of Museums in the near past has received hundreds of bronze icons, sculptures and coins from the Police (CBCID) department. Most of the stone sculptures are displayed in the Sculpture Garden. The stone pillars are erected as *mantapas* in the Open Theatre in the museum campus and just before the Guest House of the Government Museum, Chennai.

Deposits

Museums at times get objects as deposits from the courts in Indian context. Whenever antiquities are stolen from temples or private collections and are abandoned police take charge of the objects and are handed over to the Court. The magistrate Judge deposits the objects under question to the nearest museum as a deposit. When the court decision is made the objects are given to the owner. If the objects are ownerless then the objects are permanently deposited in the museums and they become the museum property.

Loan of Museum Objects

Museums often receive objects both short-term and long-term or permanent loan for a fixed period or indefinite period. The borrowing institutions have to maintain the objects in good-condition and send an annual report on the condition of the objects. The borrowing institutions also inspect the condition of the objects loaned by its officers. The objects on short-term loan are for specific purpose such as special exhibitions or touring exhibitions. Some objects are loaned to other institutions on long term loan, say for 99 years. In Government Museums the loan is given only getting necessary permission from the Government concerned. Some of the cannons in the Fort Museum, Chennai are from the Government Museum, Chennai on loan basis. Two cannons at the Government Museum, Vellore are from the Archaeological Survey of India on loan basis.

Guidelines for Loans

The ICOM adopted the guidelines in 1973 towards loan of museum objects to other institutions etc.

General

During the loaning of museum objects both the borrower and the lender should sign an agreement. The lender can recall the lent objects at any time when the agreement is breached.

Responsibilities and Expenses

The borrower should take the responsibility of all expenses towards its cost of preparation of the loan, insurance, packing, customs, transport including the expenses towards the travel of any person accompanying the objects, safe custody, handling, unpacking, re-packing etc. The lender will acknowledge the receipt of the loan immediately after the unpacking and examination of the objects, if they are in good condition.

Condition Reports

The lender will prepare a Condition Report on the objects before packing. The condition report will specify the environmental and travel conditions etc. The condition report will be sent to the borrower in advance and also along with the object. It will be checked along with the object and if there is any change the same should be sent to the lender within 48 hours. If the lender wants to examine the objects by his representative then the Borrower should meet the expenses towards his travel etc.

INSURANCE

Insurance is an undertaking, by a company, society or the State, to provide or safeguard against loss, provision against sickness, death etc., in return for regular payments.

As far as the museum objects are concerned, the insurance policy consists of four parts. They are,

1. Permanent Collection
2. Temporary Loans
3. Legal Liability
4. International Transportation and Exhibitions

At least with proper insurance being in force, there is recompense available, if it is a damaged object there is coverage provided for restoration costs and even for depreciation in value, if any, resulting from the damage, both of which can be very substantial. If there is a total loss of an object or objects, then funds are available for reimbursement to the extent of owner's investment in the property is fully protected and funds are available for necessary repairs and restoration, depreciation in value or replacement with other works satisfactory to the owner.

And so the most spectacular art insurance ever entered into has just concluded with the happy return of the *Mona Lisa*, undamaged, thank god, to the Louvre. It was insured, as it obviously has no market value, for an agreed value of 200 million Francs. The premium charged was one million Francs. A special floating container with temperature control was produced for it, of such a weight, however that one man cannot move it. To avoid attention the picture was transported on an ordinary airliner, but without other passengers than the Director of the Louvre, a laboratory and installation team, police and an insurance representative. For the flight over Soviet Territory all military air-ports were put on alert. During the exhibition the *Mona Lisa* had to be guarded by a team of sixteen watchmen in addition to the normal security staff. A special exit into a strong room had to be open permanently in case of emergency. War and political crimes – for example, piracy – were excluded from the insurance. The question of reduction in value in the event of damage is always a difficult one, and in this case was dealt with on the basis that in the event of a reduction in value of up to 20% a lump sum would be paid out, but if the reduction in value were greater a previously appointed arbitration court of five noted experts would decide on the matter.

In the European countries all the objects in a museum are insured. But in the case of Indian museums all the objects in the museums are not insured but the borrower insures the objects on transit if it is loaned.

When the borrower agrees to cover the insurance of the objects, the insurance will be nail-to-nail, i.e. covering the loan from the time when the objects are removed from the lending institution to the borrowing institution and back to the lending institution. In the event of loss of the loaned object, the total value specified in the certificate of insurance should be given. In the event of partial damage, the policy should cover the cost of repair or replacing the loss.

The main questions to be raised in case of insurance are on identity, authenticity, and valuation. The identity will be established by photographs, dimensions etc. The authenticity will be established by the experts. Now a days the authenticity is established by finger printing, fringe patterning made available in the objects in the case of art objects. The valuation has to be done by at least five experts in the field.

Customs Formalities

The lender at the premises should clear Custom's formalities at the time of final packing, before despatch. No loan should be unpacked for the examination at any point of journey.

Packing

The lender shall arrange to pack with his own packing agent and the borrower can examine the packing before the despatch.

Transport

The borrower and the lender are responsible for the safe movement of the consignment. But the lender can specify the mode of transport and the contractor with whom the work can be entrusted.

Escorts

When the lender feels that the loan should accompany a courier or escort, he can nominate one of his museum personnel to escort the loan.

Physical Environment

The lender can specify the physical environment as per norms and the borrower has to see that the norms are fulfilled.

Security

The borrower must undertake to maintain constant and adequate protection of the loan to minimise the risk of theft or damage. The authorised agent of the lender has the right to examine the physical environment at any time without the notice of the lender.

Photography and Reproduction

The objects should not be individually photographed. In case the lender agrees for photography or reproduction, the borrower should adhere to the norms for taking photography. In case of reproduction the ownership of the lender should be indicated.

Exchange of Objects

Exchange of museum objects is the most rational way of obtaining new exhibits for museums without much expense. Duplicates and triplicates should be exchanged with such items, which are un-represented in the museums. This was in vogue in the earlier times and this practice is slowly dwindled down. The botanical herbaria were sent from Government Museum, Chennai to foreign museums and intern exchanges were made. Exchange of museum objects will cut the budget, will add national character, to compare the objects of different regions or countries. The exchanges initiated by the National Museum, New Delhi with other museums in India and abroad have yielded very encouraging results. Museums at Chandigarh, Baroda, Rajasthan and Madhya Pradesh and USA have exchanged objects.

Other Methods of Collection

In the European countries in the event of the death of a person the Government takes the estate of the individual in case the individual had not paid his tax. The amount of his property equivalent to the tax to be paid is taken by the Government. The property includes some times the antiquities too. There is close rapport between the taxes department and the museum and the objects are added to the permanent collection of the museum. In the Indian context the Government of India took the Salar Jung collection, as there was no heir to Salar Jung III, the owner of the collection.

Collecting Policy

Collecting policy of a museum is governed by finance, space, subject, geography etc. Some museums do make the collection only on certain themes and objects of that sort are only collected. Even they are willing to part with some objects for want of some specific objects, which they are in need of.

Central Inventory

The Central Inventory is based on the records and Collection Services Section. It functions to maintain, permit access to and keep secure all central records for objects in the museum, both permanent and objects on loan. Central inventory must ensure that standards of recording are consistent throughout the collections and that museum procedures are followed appropriately.

Central Inventory maintains accurate and up to date records of all acquisitions based on the data given by the Collections Department. Unless accessioned by the appropriate collection section, objects cannot be entered on central inventory. It contains the following information: object type, medium, provenance, date of the object, the section to which it belongs, and whether the object was a gift, bequest or purchase.

Central Inventory maintains accurate and up to date records of all long loans into the museum, including up to date indemnity valuation.

Central Inventory institutes and maintains regular audits (spot checks) of the collections to fulfil the accountability for all objects accessioned by the museum. This involves conducting annual stock checks on objects in the museum, with appropriate staff in each collection section to confirm that the inventory and location records are correctly maintained.

Disposal of Museum Objects

While museum acquires objects of art and culture, museums dispose them too. Any form of disposal of objects, whether by donation, exchange, sale or destruction requires a very high order of curatorial judgement and it should be approved by the head of the institution, trust or the required experts depending upon the type of museum, objects, context etc.

The laws pertaining to the protection and long survival of museum objects and to the power of museums to dispose of items from their collection vary invariably from country to country and from one museum to the other with in the same country. Whatever may be the method of rules specific to the disposal of objects, no museum is completely free to dispose them. In some museums in India, objects collected and preserved in one museum are sent to other museums at the time of the establishment and the entries are made in the new museum and the objects are rounded off after getting due permission from the head and again the entries are attested by the head of the department. De-accessioning is done only after careful study by the collection Curator and the concerned persons above the Curator. No de-accessioned objects are permitted to be taken by anybody associated with the museums.

Disposal of museum objects is a very important aspect in all the museums. In the European Museums the disposal policy varies from museum to museum. Small museum disposes the surplus objects by selling them for exorbitant price and the museum is administered with the money thus received. In India especially in the Government Museum, Chennai the objects are disposed by the transfer of the objects to the district museums and the objects are rounded off from the register and the Curator who receives the objects sign the register. He enters the same object in his register and the cards are also prepared in the museum. Some time back both surplus copper and silver coins were sold to the interested persons. It has been now stopped as the purchasers sold them to others at exorbitant prices. Now-a-days the record of the objects are made in the computer.

Repatriation of Museum Objects

Repatriation means the return of human remains or cultural items to those individuals or groups establishing close affiliation with such remains or objects. Repatriation claims are rooted in the proposition that there are moral imperatives for all people to recognise that individual groups have an obligation to protect important elements of ones culture. In case of repatriation, if progress is to be made, it must be through negotiation rather than through the adjudicative process. Repatriation is based on respect for all cultures. The law should be used in repatriation negotiations not as a club, but as a means of illuminating

the cultural values of all parties involved. The law can help to bridge the gap between conflicting cultures by identifying reasonable compromise. If the negotiation process is long and difficult, it is not the fault of the law, the process mainly reflects the seriousness of the problem.

Return and Restitution of Cultural Property

According to the principles of the UNESCO convention on the Means of Prohibition and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, 1970 and if the country of origin seeks its return and demonstrates that it is part of the country's cultural heritage, the museum should, if legally free to do so, take responsible steps to cooperate in the return of the object to the country of origin. In case of request for the return of cultural property to the country of origin, museums should be prepared to initiate dialogues with an open-minded attitude on the basis of scientific and professional principles.

Case Study of Repatriation

It so happened that the artefacts collected by Rev. A.W. Brough (1861-1936), an Australian Missionary, who worked in Erode, Tamilnadu from 1894 to 1934 were donated by his family to the Australian Museum, Sydney, after his death in Australia. Later one of his great grandson requested the Australian Museum, Sydney that the objects should be sent to India. After a very long negotiation with the Australian Museum through the Government of India 30 artefacts were repatriated to the Government Museum, Chennai. The objects were handed over by the Australian High Commissioner in India to the Secretary, Tamil Development and Culture Department, Government of Tamilnadu on 28th February 2000 in Chennai. The role of AUS HERITAGE, Sydney was appreciable.

Conclusion

The repatriation of 30 objects from the Australian Museum Sydney owes to the original request made by Mr. Michael McMichael, the great grand son of Rev. A.W. Brough to the authorities of the Australian Museum and sending a letter to the High Commissioner of India to Australia. Even though, the Government Museum, Chennai did not have any idea of repatriation, it was possible by the gracious permission given by the Australian Museum Trust. The part played by Mr. Vinod Daniel of the Australian Museum is worth mentioning as he negotiated with four heads of Department of Museums within a span of six years. This has set an example in this field and people are happy about the repatriation.

According to the terms of the Convention for the Protection of Cultural Property in the Event of Armed Conflict, The Hague Convention in 1954, museums should abstain from purchasing or otherwise appropriating or acquiring cultural materials any occupied country, as these will in most cases have been illegally expected or illicitly removed.

Bibliography

1. Acquisition and Disposal Policy of the Fitz William Museum Cambridge.
2. A Century of Christian Service, The Work of the London Missionary Society in Erode, 1836-1936.
3. Antony J. Duggan, Ethics and the Curator, Ed. John M. A. Thompson, Butterworths, 1985.
4. Gareth Davies, Research: Archaeological Collections, Ed. John M. A. Thompson, Butterworths, 1985.
5. Hans Urbanski, The Insurance of Objects of Art, Museum, Archive and Library Security, Butterworths, 1983.
6. Jeyaraj, V., Churches of the Erode District, Ed. V. Jeyaraj, Worshipping Places in Erode District, Government Museum, Chennai, 2000.
7. Jeyaraj, V. and Jawahar, P. (2002) Repatriation of Museum Objects, Journal of Indian Museums, Vol. LV, February 2002.
8. John B. Lowton, Insuring Works of Art, Museum, Archive and Library Security, Butterworths, 1983.
9. Marie C. Malaro, Museums Governance (Mission Ethics Policy), Smithsonian Institution Press, Washington and London, 1994.
10. Michael A. Fopp, Managing Museums and Galleries, Roulledge, London & New York, 1997.
11. Nigam, M. L., Fundamentals of Museology, Deva Publications, Hyderabad, 1985.
12. Peter Cannon Brookes, The Nature of Museum Collection, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
13. Repatriation File, Australian Museum, Sydney, February 2000.
14. Susan M. Pearce, Archaeological Curatorship, Smithsonian Institution Press, Washington D.C., 1990.
15. The Australian Independent, Wednesday, August, 15, 1894.
16. The ICOM Code of Professional Ethics, Adopted by the 15th General Assembly of ICOM General Assembly of ICOM meeting in Buenos Aires, Argentina, on 4th November 1986.
17. The National Gallery Report, April 1989-March 1990, Published by order of the Trustees, National Gallery Publications Limited, London, 1990.
18. Vinod P. Diwivedi, Acquisition and Registration, Modern Museum, Abhinav Publications, New Delhi, 1978.

EXHIBITION

Exhibition is the most common and powerful medium to project and propagate an idea or a theme through the three dimensional objects by museums all over the world. The aim of a museum exhibition should be to stimulate observation. The exhibition must take the visitor from the known to unknown areas with the help of museum exhibits by providing enjoyment and information in a well-planned and unobtrusive manner. The museum exhibition should not be object centred but people oriented. The objects in themselves lack in meaning, significance or value except in their usefulness to people. This should be the keynote for our future exhibitions. It is essential to think in terms of giving the visitor something he cannot get at home, at school or from a library or shop; and to decide what the public should learn, feel, enjoy or believe when he leaves the exhibition. The exhibition in a museum has also the responsibility to its collection, of ensuring that it is the language through which the museum must communicate.

The modern trend in large museums of the West is for exhibits to appeal to more than one sense besides the visual sense. i.e., the sense of hearing (audio), the sense of touch (tactile), the sense of smell (olfactory), the sense of taste (gastronomic). In a gallery depicting a Pine forest, the smell of pine trees allowed in the air. An exhibit on coal allows visitors to smell the derivatives.

For instance, in a "Walk through" exhibit enlarged model of the Human Heart in the Deutches Museum, Munich, Germany, the visitor enters the heart through the blood path and all the time he is able to hear the heart-beat sound "Lub-Dub" repeatedly-(audio appeal). Finally, after examining the ventricles, auricles and the heart valves (which serve as doors) he emerges out of the heart through the AORTA (the large Artery which supplies arterial blood to the body). This is a realistic exhibit which appeals to the visitor and is highly educative. In the Dinosaurs Gallery in the Government Museum and Art Gallery, the audio is made in such a way that a forest environment is created with noise in 2005.

Exhibition is the main function of a museum in its educational activity. Exhibition has two properties. They are physical properties and informative properties. The physical properties are such as permanent, temporary, portable, and mobile. The informative properties are like thematic, systematic, object oriented, interactive, responsive, interactive-responsive, active, and narrative-oriented.

Physical Properties

The physical properties are the physical characteristics of an exhibition. For example when the exhibition is permanent, then it is permanent exhibition. The name of the exhibition tells the physical nature of the exhibition.

Permanent Exhibition

An exhibition based on the particular collection of a museum through which an appropriate theme, within the scope of the museum, presented as the core exhibition, is considered a permanent exhibition in a museum.

Permanent exhibitions will remain as long as curatorial policy upholds the need for the exhibition. This, therefore, means over 20 years in a national museum and perhaps seven to 10 years in a small provincial museum. Permanent means built to last, using well-seasoned timbers and well-trying methods of construction and finish. Errors are difficult to rectify in permanent finishes.

Temporary Exhibition

Temporary exhibitions are semi-permanent. It is for 3-6 months or even for shorter duration. Temporary should only apply to the durability of the materials used in construction and to the loan of the valuable exhibits. Temporary or short-term exhibition provides an excellent opportunity to bring its research activities to the galleries. The celebration of festivals and other occasions like that of important conference provide the theme for the periodic exhibitions. Such exhibitions could use scholarly as well as popular themes, which provide a chance to sort out the museum collection and to find out the lacuna in the particular collection, and to utilise the occasion for acquiring additional objects required to fill in the gaps.

Portable Exhibition

Portable exhibition means its portable nature. Portable exhibition is one, which can be dismantled, carried to another place and re-erected. The main consideration for such exhibitions is evident: strong, light construction; compatibility of services, voltages and so on; and construction from easily cleaned and repaired materials. They should be designed with re-packing as an integral feature.

Mobile Exhibition

Mobile exhibition is one, which is mobile in nature. It is an exhibition which has its own wheels or in some cases keel. They are also called as exhibition on wheels. This type of exhibition is common with commercial organisations or information centres. In Canada, caravans, trains and even fishing boats have been most effectively used. In India, vans, buses, trains, carts etc., are used for this purpose.

Informative Properties

The informative qualities of an exhibition are more difficult to define. A single exhibition may have different types of display. We cannot generalise the qualities of an exhibition. It can be thematic, systematic, object-oriented, interactive, active, interactive-responsive etc.

Thematic Exhibition

Exhibitions with certain themes are called thematic exhibitions. Thematic means with a theme, the theme being the original concept. The objects are found or made to support the story line. It is narrative oriented.

Systematic Exhibition

Systematic means that it is evolved around a specific system of classification. Cases are laid out according to a classical order, or in order of the age of the objects. In broad terms, the collection exists, is classified and then the exhibition is laid out systematically around it. It is therefore largely object-oriented. Object-oriented is, however, a term often associated with one, or a collection of fine objects not laid out in any system; it is simply the preferred order. The objects are the reasons for the display.

Active Exhibition

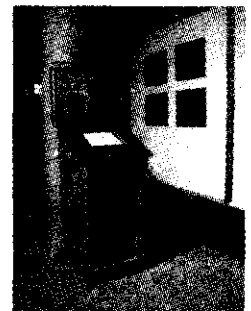
Active exhibition is one in which the display is changing or oscillating automatically. Young children and adults mostly like this. National Museum, New Delhi, Government Museum, Chennai, etc., has automatic scrolling exhibits. The Tate Gallery, London is changing the exhibits every month in the permanent exhibition and the programmes are issued accordingly. Inter-active display is probably the most misused word in the vernacular. Those displays which depend for their effect on the visitor's contribution, whether electronic or mechanical, should be termed inter-active. Now a days most of the museums which display science objects are all this type. Even multipurpose museums have gone for inter-active displays even in case of archaeological objects. They are otherwise called as participatory Exhibition. Participatory exhibit was pioneered by Dr. Frank Oppenheimer, the brother of the Nobel Laureate in San Francisco, which opened in 1969. He developed exhibits that involved the visitors directly in an interactive process of understanding scientific principles, combining a great deal of fun.

Responsive Exhibition

Responsive display is one, which automatically respond at the arrival of the visitor. There are commentary pertaining to the exhibit also broadcast and the same can be heard by the visitor if he has a head phone.

Responsive-interactive Exhibition

The display, which responds to the visitor's arrival and depends on his presence, is responsive-interactive display.



Touch Screen
Government Museum, Chennai

Organisation of Exhibitions

In organising an exhibition various aspects are to be considered. They are the following:

1. Purpose of exhibit and exhibition
2. Programming of exhibition
3. Object selection
4. Exhibit text and language consideration
5. Lay out and special consideration; scale model
6. Consideration of the audience
7. Equipment
8. Interpretation principles
9. Audio-visual programmes, slides, film strips, photos, recordings, sound tapes, motion pictures

10. Technical requirements

Purpose of Exhibits and Exhibition

Museums are places of higher entertainment. They are the places to which those who delight in knowledge resort. They are the havens for those who love to rootle among the clues to man's immortality. They are the repositories of tangible reality where the actual three-dimensional objects can be seen or touched or walk around it. Some exhibitions are laudable to please and excite, to give three-dimensional assistance to the process of education, to inform a specific age or social group.

Bibliography

1. British Museum Occasional Paper III, 1996.
2. Das Gupta, S. P., and Bhaduri, D., Exhibition on Life through the Ages, Indian Museum Bulletin, January 1976.
3. Giles Velarde, Exhibition Design, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
4. Kaplan Flora, E. S., Museums and the Making of Ourselves, Leicester University Press, London, 1994.
5. Michael Belcher, Communicating Through Museum Exhibitions, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
6. Miles Roger and Zavala Lauro, Towards the Museum of the Future, Routledge, London, 1994.
7. Smita J. Baxi, Museum Exhibition and Display, Museology: New Horizons, Agam Kala Prakhasan, Delhi, 1980.
8. Smita J. Baxi, Role of Museum Exhibition, Museology: New Horizons, Agam Kala Prakhasan, Delhi, 1980.
9. Steeven A. Griggs, Evaluating Exhibitions, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.

MUSEUM PRESENTATION

Presentation is the important aspect of an exhibition. It is a tool of communication and as means of creating a delightful museum environment that would attract and enlightened people of all walks of life. Presentation is otherwise called as display. The word "Display" has a shop-window connotation and used more for commercial purposes. There fore the word "presentation" is more appropriate for museum purposes. Dr. Grace Morley emphasised this several times in her lectures and writings. Display in general is a graphic in three dimensions. Display is also a language symbols. Graphic, which will include posters, maps and charts must merge with the overall framework of exhibition to highlight the coherent story of exhibition. The success of each exhibition depends on the ability, talents and co-operation among the staff and so also the methods employed-samples, tests, production techniques and materials including the exhibits. The requirements of display in museums are very modest-a pedestal to put sculptures or a stuffed animal, a show case to pin up or hang paintings, a desk top to place stone tools, pot shreds or fossils.

Principles of Presentation

There are two types of presentation in setting up an exhibition. They are:

1. Primary display
2. Secondary display.

The primary display is meant for the public and the secondary display is meant for the scholars, who already possess some experience and knowledge about the exhibits. In other words, the primary display is public oriented and the latter is research scholars oriented. Broadly speaking, the secondary display is nothing but the arrangement of objects in storage.

The object-label is what the museums call as display. The idea of communication through exhibits is a recent concept. Innovative display techniques such as walk through cave exhibits, Ice Age Habitat, dioramas, interactive exhibits, participating exhibits including discovery rooms, live corners, the increasing use of audio-visual aids and modern chromatographic techniques such as the I-max and the Omni-max projection systems have also revolutionised museum communication calling for innovative design and architectural features. Recent advances in information technology and the exploration and adaptation of electronic media for educational communication have also contributed to a great extent to exhibit design and display in museums.

Museum Design and Display Techniques

A museum exhibition depends on the designing of the area available, method of display, display materials, the exhibit, label, colour scheme etc.

Museum Design

A museum designer, as a museologist puts it, "should build his own working philosophy on the idea of facilitation and enhancing communication by making each display a tasteful environment for art, remembering always to respect the particular nature of each type indeed, each object. The designing of an exhibition depends on the size, shape, weight, colour etc., of the object and the distribution of space such as architectural factors viz. Size of the room, ceiling, windows, ventilators, columns. The museum designer has to create a uniform architectural environment by providing false ceilings and walls, wherever necessary and sometimes by erecting wooden partitions to create separate small rooms with a view to divide the space and produce architectural harmony.

The methods and techniques of museum exhibition have changed in order to meet the demands of the visiting public. Museum eagerly accepted the new exhibition technique in the light of their changing concept, mainly due to the entry of scientific, archaeological and natural history collection of the gallery and with the emphasis on educational role of museums.

Another factor responsible for the entry of modern display techniques into the museum recognition gained by exhibition as a communication medium. It soon assumed its pre-eminent function of communication which could supplement, if not replace the book and magazine for purposes of communication and schools for education. Attractive and educational presentation of exhibits certainly brings more visitors to a museum.

Elements of Museum Display

The various elements of museum display are space, exhibits, walls, panels, cases, supports, labels, materials, colour etc. These elements put the objects with in the field of vision of a standing observer. They also serve to protect the exhibits, to carry lighting and to subdivide spaces.

Space

It has been rightly remarked that the museum is not a place for the architect to show off his capabilities. What matters in a museum for more than the building- as important as this is - is the content, the objects, pictures, trophies or what ever that the museum contains. The interior of the building or hall should be quite open so as to give the idea of space with minimum structural walls. It will give a chance for future alterations and improvements in the display without being architecturally disturbed.

Exhibits and Selection of Exhibits

Exhibit is the primary important component of an exhibition. Exhibits are the basic means of communication in a museum. Every object put on display has a silent language of communication. If the exhibit does not speak to the visitor, it means the exhibition does not serve to the visitor. A good museum exhibit should reflect the highest State of the Art.

It should necessarily be a balance of information and attractiveness. It is unfortunate that generally museum exhibits lose their communication potential as a result of their poor attractiveness. The aim and objectives of each display within the exhibition need to be clearly stated, that is, what it is intended that the exhibit will achieve. The purpose of exhibits is to bring about some change in the visitor and to do this, the characteristics of the intended audience must be identified. Every element of an exhibit such as specimen or artefact, label or caption, model or diorama, audio-visual presentation or interactive device must be related to a stated objective of the exhibit. Each will compete for the attention of the visitor, but all components should have a considered purpose. The changes that the exhibit is intended to bring about may be either effective or cognitive-changing attitude of feelings or levels of knowledge through exposure to, or interaction with, the object.

Walls

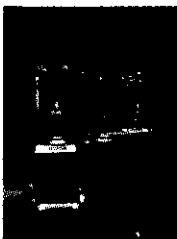
In a traditionally constructed building, the wall is the readily available supporting surface. It is possible and occasionally desirable, to modify the wall surface by colour or by the addition of a further surface created by suitable materials like wood, plastic or even metals. This is achieved mostly in the case of big halls of the buildings, which are used as museums.

Panels

Panels are the additional walls, floor or ceiling planes and fulfil the same functions like wall, support, background and space separation. As these panels are movable and thus changeable they are advantageous in display. The kind of space they define can be altered depending upon their position related to light, other exhibits and the movement of the observer for each particular occasion.

Cases

Showcase is one of the key items of museum equipment. It encloses and protects objects from climatic changes, dust, insects, careless visitors, theft, light, pollutants, climatic conditions, theft, vandalism and normally also brings them to a reasonable viewing height. The climatic conditions within are much more constant and can additionally be altered by inserting, for instance, hygroscopic material like silica gel or fumigants like para dichloro benzene or oxygen absorbers like Ageless.



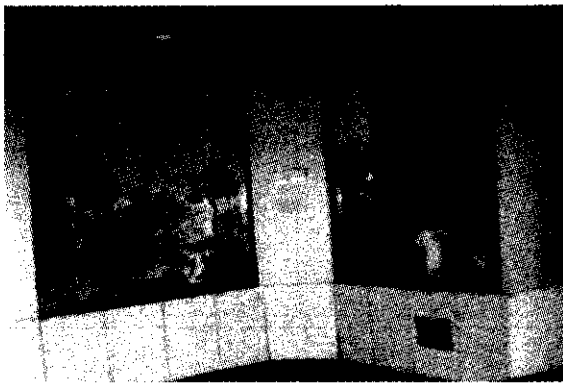
Revolving Type of Display of a Bronze Icon

There are different types of showcases. They are table showcase, wall showcase, freestanding showcase, vertical show case, built in showcase, running showcase, multi-level showcase, floating showcase etc. The objects may be mounted on or attached to the supports at varying shapes and at different levels. Perspex mounts are much useful for this purpose and are aesthetic to look at. Now a days table or desk show cases are being replaced by vertical show cases. More recently showcases, which are entirely of glass are being used in the display of objects in museums. Vapour cured aluminium frames are used to hold the toughened glasses.

In European countries the museums are using air tight glass and metal alloy framed show cases to protect the objects from the atmosphere, moisture, insects, vandalism, theft etc. This type of show cases are having three compartments. The upper portion is separated from the middle portion where lights are fixed. This portion is accessible to the electrical maintenance staff without the consultation of the curatorial staff. Similarly the bottom compartment is accessible to the conservation staff to keep insecticides, fumigants or dehydrating agents independently.

Dioramas

It is necessary to check the suitability of modern technique for use in the museum exhibitions. The objects should form a part of the surroundings in which they are shown. The objects, the surroundings, the lighting- all should be co-ordinated to give the one and the same



Dioramic Case, National Museum of Natural history, New Delhi

message and convey the particular theme collectively, rather than being evaluated on their individual merits.

Dioramas are some times needed to explain the technical and functional aspects of the objects, which are often obscure, because the objects are now obsolete. In the modern days, as all types of objects are not available for a museum, there is no other choice but to fill the gaps with models and dioramas depicting the environment of the exhibits.

In a diorama case of a prehistoric gallery the original object can be kept in the fore ground so that the focus of the attention of the visitors is on the originals. The environment may be portrayed as the background.

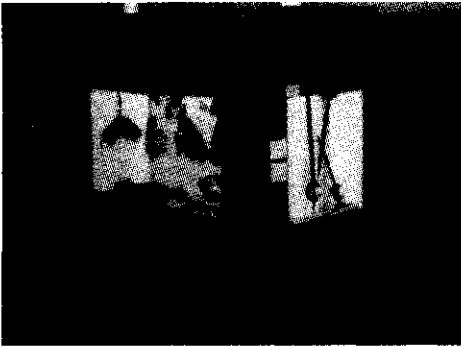
In science museums, it is not always possible to have the originals, but only miniature models have to be kept in dioramas. In the museums of science and natural history the exhibits have to be prepared showing the different stages of progress for which mostly models, replicas and graphics are employed. Such exhibits make extensive use of animation, recorded sound, slides and films, which are appropriate for demonstration of an experiment. Use of these requires a well-planned strategy to ensure that the technique does not over shadow the theme. Extensive use of these techniques has converted the museums into the exhibit centres, which rely exclusively on the use of the audio-visual aids in the absence of original materials. Similarly intangible cultural / scientific background may be added to supplement the tangible objects.



Dioramic Display in Chennai Museum with Viny printed Backdrop

Semi-dioramic Display

Instead of creating the environment of the object, the environment is supported by relief work and this type of display is called semi-dioramic display.



Built in Island Show Case, Government Museum, Vellore, Tamil Nadu

Walk-through Dioramic Display

Instead of the dioramic display, the entire display area in a gallery is converted into a diorama and the visitors can walk through the diorama, this is called walk-through diorama. The Cave and Rock Art Gallery



View of a Walk-through Dioramic Gallery in the Chennai Museum

in the Government Museum, Chennai is one of the examples of a walk-through gallery. Sometimes the environment is made to have the smell, the sound etc.

Simple Display



Display of Preserved Human Body, British Museum, London

When objects are displayed with out much supporting materials, the display is called as simple display. For example, display of sculptures in many museums. Usually sculptures are exhibited with a single label consisting of name of the object, place from where it was collected, period of the object etc. They do not give any other information. This is simple display.

Open Display

Depending upon the size, nature, value, quality etc., some objects have to be displayed inside showcases or diorama cases. But large objects such as life size sculptures, paintings, objects like temple cars, etc., have to be displayed openly in the galleries. They need to be displayed on built in

pedestals. In the British Museum, London the sculptures are displayed on pedestals made out of fibre, which looks like stone. Some museums display the objects out side the galleries to attract visitors to the museum. In the Natural History Museum, London models of dinosaurs have been displayed in the front yard of the museum. In the Indian context we can see the display of large sized original objects or models out side the museum. In the National Museum of Natural History the models of dinosaurs are displayed in



Simple Display of Bronze Icons on Pedestals in the National Museum, New Delhi

front of museum. In the museums in Tamil Nadu the department of museums has displayed dinosaur models out side the museum, which attract many visitors to the museums. In the Government Museum, Chennai and in the district museums sculpture gardens are set up out side the museums, which provide a chance to those who visit the museum on holidays or after museum hours to see the open exhibits. This is the case with National Museum, New Delhi; Raipur Museum, Raipur, etc.

Designing and Planning of Exhibits

Production of a successful exhibition is a group effort, with each member contributing specialised message and skills. In order to implement the policy of exhibition, each member should liaise closely with colleagues at all the stages. The Director or the head of the museum initiates the exhibition project and get the administrative approval and sanctions the necessary funds. The Curator provides the necessary information, contribute to the writing of the design brief, and identify the material from which the final selection of what to display in the exhibition will be made. The designer assists in the preparation of the brief and provides design solutions. Once approved, the design solutions are translated into specifications and working drawings by the designer, who normally supervises the production stages of the exhibition. The conservation staff prepare the material for the exhibition and advise on the environmental conditions of the display. The security of the exhibition is the responsibility of the security staff.

Supports

Supports are nothing but methods of holding up an object which cannot be described as wall, panel or case. Normally, these supports provide stability at a desirable level, some fixing to prevent removal and often differentiate the display from its surroundings. Various supports like perforated boards or metal sheets, Perspex planks used as pedestals for keeping small objects, fixtures to hold the objects to the back ground panel, wooden platforms, plastic platforms, palettes for keeping large objects are some of the supports in common use in museums. Some times glass sheets are fixed over metal rods and the objects are displayed on them.



Glass Support

To give relief to the displayed objects, some background materials are used. Different coloured cloths, different types of boards like hard boards, compressed boards, phenolic resin boards etc. It is very important to check their suitability before using them in the display. Normally well seasoned wood like teak, white cedar wood is used. Ply wood, block boards, etc., should not be used in permanent exhibitions as the durability of these materials is very short and these materials are prone to insect attack. The back ground cloth, paint etc., should be tested for their neutrality. Certain materials emanate certain acid fumes, which will affect organic materials very easily. Sulphur dyed cloths blacken silver objects.

SIGNAGE

Any public place needs signs to direct people. It is called signage. Signage is the physical, intellectual, conceptual orientation to be offered in a museum to a museum visitor. But a good signage is to keep the number of signs to the absolute minimum. To avoid the superfluous signs, the signage should be very carefully decided, where needed and what kinds. The signage makes the illiterate also feel comfortable.

Many kinds of signage can be called for. They are directional, orientation, interpretive, descriptive, conceptual, intellectual, physical etc. The signage should be able to remove the embracement of the visitor. The signage starts from entry to the town or city where a museum is located. A good signage is able to attract more visitors. There are museums in some cities, where even the tour operators, the drivers of taxis or auto-rickshaws do not know, where the museum is. In a museum, the signage has to be standardised by its material, language/symbol, style, colour, layout, methodology etc. Certain signage symbols like wheel chair with a person turning to the right (representing physically challenged), a man standing, a woman standing (both meaning toilets), a spoon and fork (cafe), tap with dropping of water (drinking water), telephone (a telephone booth), an arrow (shows the direction at which one should proceed), a car (a car stand), etc.

Labels

Labels are rather like the title page of a book. The aim of the label is to provide essential information and arouse curiosity to study the object. They provide certain factual information such as authorship, date, place of origin, and identification without necessarily describing the contents. This is the minimum amount of information to which a museum visitor is entitled. Further information can be given in the label itself, on a separate label related to a group of objects or in a catalogue. In whichever form it is conveyed some distribution ought to be made between information of general interest, such as an explanation of its historical context or method of manufacture and items of scholarship such as attribution or a list of its previous owners. The individual label should relate to a single specimen, giving its name or heading, the necessary text, for instance the period, nature of the specimen, purpose and routine information like the registration number and the source of acquisition. Therefore the labels are to help people to think, look and read, to make the visitors to interact with the exhibit, to bridge the gap between the Curator and common man and lastly, to serve, awaken, inspire and educate a large number of visitors having different levels of education.

The label can be printed, typed, type set, painted, computer printed cut self adhesive letters or even hand written. The label materials, form and presentation should be examined minutely. Type, weight, tint, dimension etc., are also important considerations. Normally, the labels are printed on card board, inscribed on Perspex sheet and painted and fixed either in the right side or the lower right side of the objects.

Exhibition Text and Language

The language of the label must be clear, concise and as simple as possible. In order to help all types of the visitors the label can be multi-lingual. In countries like India, since three languages formula is under practice, it is better to have a label having three languages such as English, Hindi and the local language. But invariably bilingual labels are found i.e. local language and English. Labels can be hand written, printed, engraved and in filled with paint or painted. The label should not dominate the object. It is necessary to place the label at an inconspicuous but fairly visible place so that whenever the visitor wants to know about the object he is able to find the label.



Bronze Gallery, Government Museum, Chennai before 2003

The design of the label must carefully consider legibility at a range related to the likely position of the onlooker. Occasionally it will be impossible for the label to be near the exhibit it refers to. In such cases the relation between the object and label must be made absolutely clear by other means such as a small reproduction of the object next to the label, arrows or other identifications.



All Glass Toughened Glass Multi-level Showcases in the Bronze Gallery after 2003

Normally labels are hand-written, painted or printed on paper. Some times the printed label used to be kept under glass or Perspex sheet. Labels are also painted on wood using enamel paint. Letters are engraved on metal sheet and in-filled with enamel paint. Now days Perspex sheet is used to engrave letters from the reverse

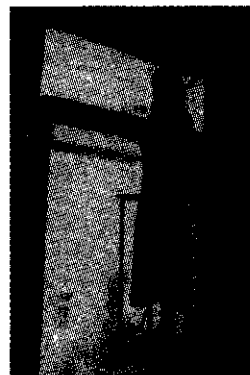
and in-filled with paint so that the visitors can not scrape the paint applied are in long run. Polyester resins are used as adhesive as they do not make any stain. Different colours are also used in labelling depending upon the colour of the background as well as the exhibit.

Lay-out and Special Considerations

Layout of the exhibits is a very important factor for the aesthetic look of the exhibition. Blue prints are made before the objects are displayed in a case in a gallery. In case of galleries it is always good to prepare models and then start the display. Scale models are made for a permanent exhibition. This model will satisfy the administrators before the display is made. In most of the European museums the designers do much research before the model is made. The museum appoints freelance designers for this job. They in consultation with the staff of the museum do the job.

Materials

Materials play another important role in the display of objects in the museums. The microclimate within the case plays a very important role in the preservation of the objects displayed. In the earlier days the objects were either kept displayed on the wall or on pedestals. But the modern display is within the cases in order to provide security. Normally in the nineteenth Century the showcases were made out of wood and glass. But wood is being slowly replaced by aluminium and other alloys of aluminium, glass, and silicone rubber to provide air tightness to the case. The materials used emit certain gases, which affect the objects inside the cases. Therefore, a good choice of materials is a must.



Metal Showcase

Colour

Colour in a room or inside a showcase is as important as the display of objects. Colour is one of the media of attractions. Therefore it should be kept in mind that only pleasing colour scheme, which will be most effective in the presentation of the exhibits in the gallery should be adopted.

Consideration of the Audience

It is an important factor that the museum exhibit must meet the needs of the museum and the visitors. The Curator and the designer should know the psychology of the visitors. In a gallery some objects attract the attention of the visitors while some do not. The exhibition must give the visitor a new idea or message. Then the visitor spends time before the object. The museum visitor is fatigued. This is merely not because of tiredness but because of the design and display. The display should be in such a way that they provide attraction and satisfaction of having seen a new thing which the visitors have not seen in that way. Recently, recreation and tourism have taken up firm roots in families and also among children and students. The families like to spend sometime during holidays in recreational centres or amusement parks or theme parks. The landscaping can be a feast to the audience.

Innovative Techniques

Routine display can not attract visitors to the galleries again and again. Innovative scientific techniques should be employed in the display.

Animation

Movements to the objects can be given by introducing some engineering devices to the objects. Visitors especially children will enjoy the animation effect in the objects. For example movement of arms of a doll, which holds a weapon, explaining the method of usage of the weapon. In technological museum the working of a machine will fascinate the

visitors. In case of an exhibit which explains paper making, the flow chart may be animated as in the case of an exhibit in the Children's Museum in the Government Museum, Chennai. In the Wax Museum in London, a 19th Century scene is reproduced in animated wax models which make the visitors spell bound and makes them to remember for ever. In the Science Museum, London the special exhibition on Dinosaurs the rubber models of the exhibits had been animated by engineering devices, which impressed the visitors. A long queue of visitors used to wait to see the exhibition. I was to wait for an hour to enter into the Madam Tusauds in London.

Interactive Display

There is an old saying in China- I read and I forget. But when I see I am able to remember at least. When I do the work, I understand the working of that equipment. There fore when we develop an exhibit i.e. a working model and operate it, we actually understand it more than any other means of language. It is a modern world where computers are in vogue. Information about the exhibit is fed into the computer along with the photographs. For example, a visitor enters into a musical instrument gallery, where a kiosk is fed with information about various musical instrument, which are displayed in the gallery. Suppose the visitor wants to know about a particular musical instrument, he has to touch the instrument in the screen. If one is interested in the history he can touch the word history and he gets all the historical information. If one is interested in the music he has to touch the word sound with the finger on the screen and he gets the music. It is fascinating to all the visitors including the children. This can be done for tribal, animal, etc., showcases.

Participating Exhibit

Museums are existing to impart education to the visitors while preserving the artistic, cultural, historical and scientific past to posterity. Suppose the Curator wants to teach tribal culture to the visitor, he prepares a case in which different materials used by different types of tribes are displayed and electrical connections are made with bulbs. Suppose the visitor wants to know the dress used by a particular tribe he has to press a button available near the tribe's name, and the bulb near the particular exhibit will glow making the visitor to under stand the answer while seeing the exhibit. Such exhibits are found in the Children's Section of the Government Museum, Chennai. This was introduced in the district museums in Tamil Nadu.

Live Corner

Most of the museums in the western countries have a live corner to attract the visitors. In India also now museums are organising such exhibits. Live demonstrations are conducted or video shows film shows on certain aspects of the exhibits are conducted periodically, where the visitors are attracted to go and learn many things. A natural history museum has



Acquarium in the Indian Museum, Kolkata

an aquarium in side the museum to show the habit of a particular variety of marine animals. In the Kew Gardens in London suitable elimates are artificially created to grow the plants and trees of different climates.

Discovery Room

The visitors are given an opportunity to discover things in a corner of a museum / gallery. Children are much interested to enjoy while learning. Questions are asked and the students are asked to point out the object. In the Government Museum, Chennai in the recent years the blind children were brought to the museum and the objects were given to them and were asked to tell the name of the object. Similarly school children are also brought to the museum and are given some information about the objects and are asked to tell about the objects.

Period Room

Museums have a gallery as a period room in which the objects of a particular period are kept. In the Imperial War Museum in London there is a gallery in which bombing during the second word war is demonstrated live which reminds one the condition of the period. In the Milwaukee Public Museum, USA, 18th Century streets of Milwaukee are reconstructed and installed with a remarkable degree of authenticity. The entire laboratories of the past are reconstructed with amazing realism and authenticity. For example, the Laboratory of Galileo reconstructed in the Deutsches Museum at Munich. The introduction of period culture rooms as done in the Baroda Museum to show the art and civilisation of a particular period or country has proved very effective in modern museum display techniques.

Audio-visual Aids

Audio-visual aids help the display very interesting. Some museums have got pre-recorded tapes in the showcase and when one switch on the tape recorder the necessary information is heard. There are some museums where pre recorded tape recorders with headphones are available which make the visitor to have more information about the exhibits. In some museums the bays where exhibits are displayed local broadcasting is done and a visitor who enters with a headphone is able to receive the information about the object. Wherever he goes he will be able to receive the information about the particular objects exhibited in the particular bay. Some museums keep a gadget screen near a particular object and if one wants to know more about the object one has to switch on the TV and he can get the required information.

What ever may be the type of display it should arouse the interest of the visitor to know about the exhibit more. Indian museums are now striving very hard to capture the attention of the visitors to make them to learn about the objects. Bigger museums are spending money in this aspect in these days.

Multi-media

The ancient writings were done on rocks, palm leaves etc. Nowadays the writings are made on CD ROMs. There is music, there are paintings and animations, there is text and there is narration. Thus the multi-media is much useful in the galleries for educating the visitors and useful for the researchers.

Microsoft Art Gallery is an interactive guide to one of the world's finest collections of old master paintings, based on the London National Gallery's own in-house computer information system, Micro Gallery. It is a collection of more than 2000 paintings concentrating on historical European art including works by leading artists like Leonardo da Vinci, Michael Angelo, Raphael, Titian, Holbein, Poussin, Rembrandt, Scurat, and Vangogh. Pictures are 250 colour digitised reproductions. The CD offers information about the paintings, the artists and the times and places in which the artist lived. You can explore art gallery via 5 path ways; Artists, Historical Atlas, Picture Types, General reference and guided tours. There are some animations here, though the term is a little misleading; one can see paintings move from prerestoration to after they have been restored. One can also see grids appear to clarify perspective and other points. Some pictures appear more than once and the categorization of others is debatable. Ideal for research, both text and pictures can be printed as is or cut and pasted into one's word processor.

Display of Specific Objects

Museums are different and the method of display is also different. Archaeological objects in a museum may be in need of built in showcases or a pedestal for their display. Coins in a museum may be in need of small cases to hold them. Ethnographic objects may be in need of large rooms and space. In a maritime museum, the display needs a large space with high ceilings. In the Government Museum, Chennai a large fish is suspended from the ceiling.



A Fish is Suspended

Display of Ethnographic Objects

The ultimate function of an ethnographic museum is the dissemination of knowledge through planned exposition. The first step in planning an exhibition of ethnographic importance is the selection of the right type of objects. In an ethnographic display each and every object is like a character in a story, without which the story remains incomplete. The second important pre-requisite for installing an exhibition is the arrangement and preparation of the gallery lay out. In a modern ethnographic museum, it is necessary to convey thematically the information about a group of objects. Various museums of ethnographic importance around the world have successfully displayed their collection on popular and



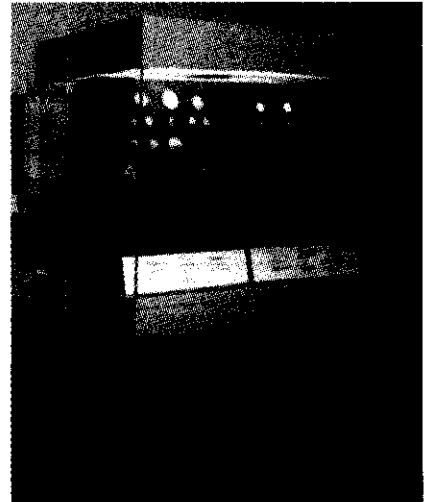
A Toda Show Case in
Government Museum, Chennai

widely acclaimed themes. The theme-oriented display engulfs the man and his culture in totality. In an ethnographic museum it has become the convention to give an introduction, the people and region concerned. This is done by means of an orientation gallery set up at the entrance of the museum. Generally maps, charts, photographs and transparencies are used to explain the objective of the exhibition. The recreation of the environment which is the intangible culture in a gallery catches the attention of the visitors. It needs a lot of space and budget for setting up the gallery. The

composite-display system is a mixture of environmental and the conventional method of presentation. When compared to the open-air environmental display the composite-display system is less expensive and the same may be afforded by small museums too. In museums like the South West Museum in Los Angeles, the Museum of the American Indian, New York, National Museum of Anthropology in Mexico objects are depicted by realistic portrayal of the culture and everyday life of the people by means of a careful selection and assemblage of the objects, sometimes in the form of actual life size models of the people themselves. Tribal music is played with the help of electronic gadgets. In the Indian Museum, Kolkata, the dioramic showcases depicting the tribal culture are well designed. The models are lifesized. Similarly, in the newly made Gallery of Evolution of Man in the Government Museum and Art Gallery, Chandigarh forest sound is recreated.

Display of Coins

Display of coins in museums is rare due to the miniature size of the coins. The Government Museum, Chennai is practising the display of metal cast or plaster cast coins in the gallery. The same method is being followed in the district museums in Tamil Nadu. But this is not good. The author changed this practice when he displayed original coins in the Vellore Museum. When the coins are displayed many methods can be practice. One method is to display two coins of the same type one to show the obverse and the other to show the reverse. The second method is to display the coins and to keep a photograph or eye copy of the coin by the side of the original coin. The third method is to keep the coins in the cut out grooves and protecting them with the help of two glass sheets on both the sides so that the visitors may see the

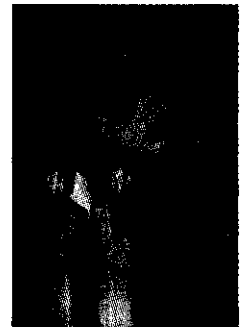


Display of Coins and Medals,
British Museum, London

obverse and reverse of the coins. The next method is to display the coins on glass and a mirror is placed below the coin and proper lighting is provided so that one can see the obverse of the coin from the original coin and the reverse of the coin from the mirror image of the coin. This type of display is made in the Assam State Museum, Guwahati. Another method is to display the coins in a showcase and fix an adjustable magnifying glass in the sloping case to view the coins of interest. The methods of display may be different but the coins may be displayed along with the map of the dynasty and the label of the coin. Recently, the Numismatic Gallery in the Government Museum, Chennai is modernised. Large Size fibre glass models are kept on display.

Display of Sculptures

Display of sculptures in museums is difficult, as they are heavy to handle. Large objects are normally displayed on wooden pedestals and are covered to give a built in pedestal look. Small metal sculptures cannot be kept out side the showcases. They need to be kept within a showcase. Small objects are arranged on glass pedestals at the eye level inside the showcase. This type of display is followed globally. Large size plaster models or sculptures are displayed in the galleries or in the open space under natural light.



Sculptures in Amaravati Gallery, Government Museum, Chennai

Display of Paintings

Display of paintings in a gallery is as important as the painting itself. Large size paintings are at times displayed in the walls so that they may be viewed from distance. The paintings are fixed to the ceiling using fixed metallic ropes and the painting may be either lifted up or lowered down depending upon the need. In most of the European museums the paintings are displayed as mentioned above. Mostly natural light is avoided. Artificial that too diffused light is used in the painting galleries.



Science Exhibit in Periyar Science and Technology Centre, Chennai

Display of Objects for the Children

Children's museum needs special display to capture the attention of the children. Models, audio-visuals, multi-media are liked by children very much. The Nehru Children's Museum, Kolkata has two large galleries in which the Ramayana and Mahabharata are depicted in the form of environmental cases with the models. In the Chennai Children Museum most of the civilisation showcases are provided with models, which attract most of the children.

Display of Decorative Arts

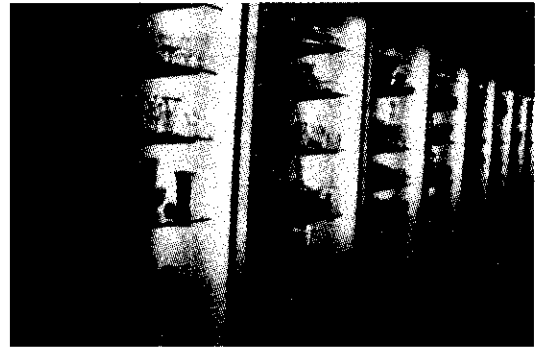
Ivory Objects

Even-though there is no demarcation between fine arts and decorative arts, when we say decorative arts it means objects like ivory, glass, bidriware, wood, textiles etc. Normally

ivory figures are small in size. They are round and they need special attention in their display. They may be displayed in table showcases or in built in showcases. Brackets at different heights help breaking the line and monotony. If the figure is carved in round, it should be shown in a case having glass on all the four sides or else on a pedestal with a Perspex cover. Ivory objects being cream coloured they look appealing if the background is dark or neutral colour. Graded wooden blocks covered with textiles will be aesthetic to look at.

Glassware

Since glass objects are not having uniform shape and they reflect to light it is difficult to display. Since they reflect light it is better to use fluorescent lights. If the background is a smoked glass the effect is harmonious. Light colour glassware needs dark background. It is better to have glass sheets arranged one above the other allowing the glassware to be displayed in each plate and fixing florescent light behind and allowing the light through a vertical ground glass.



Display of Glassware, V&A Museum, London

The setting up of the Glass Gallery in the V&A Museum, London is excellent as only glass is used in the gallery for the cases also.

Bidriware

Bidriware are either flat or cylindrical in shape and they need special display. They may be displayed in wall showcases or built-in showcases. To break the monotony these objects may be displayed on blocks of different heights and sizes. Since Bidriware are light black colour the background should be light cream coloured with fluorescent lamp.

Wood-carvings

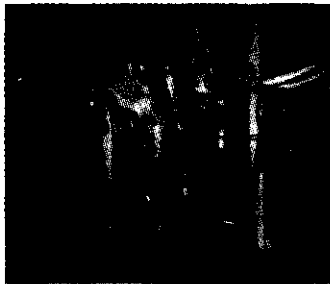
Large size doors with thresholds may be displayed openly inside the galleries keeping the door half shut with spot light focussed to the object displayed. In case of small sized woodcarvings, they may be displayed inside the showcases. They may be clamped to the wall cases or put in table cases. Depending upon the colour of the woodcarvings the background also may be chosen. In general light cream colour or puff coloured background will match the object on display. In case of woodcarvings from the temple car they may be displayed along with the photograph of the temple car itself. A temple has been displayed inside the Government Museum, Kanyakumari. A large temple car is on display in the National Museum, New Delhi, in the open yard with fibre glass cover.

Textiles

Textiles should be placed inside the showcases to avoid dust and human touch. In the European museums textiles are displayed against the wall on support textiles using *Velcro*. Barricades are used to avoid the human touch. Some museums also provide large glass to avoid dust and human touch. Each piece should be displayed separately depending upon the size and colour. Most of the objects are displayed hanging from rollers. Diffused light may be used. In case the carpet or the textile piece has same design on both the halves, then one half may be displayed to avoid much space. Saris may be displayed in sloping showcases keeping them rolled in non-corrosive rollers tight level should always be controlled.

Display of Natural Science Objects

Display of natural science objects involves a lot of imagination before the objects are displayed in the gallery. Mostly the objects are displayed in the natural environment and normally this type of display is called the dioramic display. The objects are placed in the foreground of the showcase and the environment is diagrammatically brought out so as to



Display of an Elephant Skeleton,
Government Museum, Chennai

have the original setting of the objects. The National Museum of Natural History, New Delhi is trying to recapture the environment of the objects. In Chennai also the natural science objects are dioramically displayed. Zoological specimens are displayed in a natural environment where the trees, plants, type of ground etc., are displayed. In some of the European and American museums even the smell and sound of the forests in which the birds and animals found are reproduced in some of these great halls of dioramas to achieve a remarkable measure

of realism. In some natural history museums such as the Copenhagen Zoological Museum, an attempt has been made to reproduce accurately a wooded locality in a swampy setting with stuffed birds and mammals mounted here and there in one section and with actual preserved or modelled vegetation side by side with real water, living fishes, reptiles and birds in another section and even the sounds of the birds are reproduced by tape recording.

Display of Science Exhibits

Science exhibits are in need of a large space in the galleries as they involve a lot of engineering. They must have proper electric supply, provision for the handling of the exhibits. The Visvesvarayya Technological Museum, Bangalore has got all provisions for the use of the exhibits by the children. In the European and American museums a great deal of animation and realism are observed and most exhibits are of the demonstrative type, which can be operated by the visitors themselves by pushing buttons. ie. Learning by participation. The Children's section of the Government Museum, Chennai has many interactive exhibits.



Science Exhibits in Visvesvaraya
Museum, Bangalore

Bibliography

1. Allan, D. A., *The Museum and its Function, Organisation of Museums: Practical Advice*, UNESCO, Paris, 1960.
2. Asif Naqvi, *Modern Museum Display Techniques for Effective Communication*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.
3. Asokan, J.R. and Kannan, R. (2005) *Evaluation of a Museum Based on the Signage*, *Journal of Indian Museums*, Museum Association of India, New Delhi.
4. *Computers at Home*, Vol. 2, Issue12, December 1997.
5. *Computers at Home*, Vol. 3, Issue 2, February 1998.
6. Das, A. K., *Museography for Ethno-cultural Material*, Agam Kala Prakashan, Delhi, 1989.
7. Devasahayam, N., *Amalgamating Science Centres and Multipurpose Museum – Thro' Exhibits – Some Thoughts*, *Journal of Indian Museums*, Vol. LII, 1995-96.
8. Devasahayam, N., *Presentation in and Educational Activities of the Anthropological Galleries with Particular Reference to the Government Museum, Madras*, Thesis Submitted to M. S. University, Baroda, 1967.
9. Devkar, V. L., *Modern Display Techniques*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.
10. Grace Morley, *Museum of Anthropology: Their Role in East, South and South East Asia*, *Eastern Anthropologist*, Vol. 29, No. 1, Lucknow, 1976.
11. Indrani Bhattacharya (2005) *Evaluation of Museum Signage as an Aid to the Visitors with Special Needs*, *Journal of Indian Museums*, Museum Association of India, New Delhi.
12. Kotaiah, B., *Problems of Labelling in Museums*, *Studies in Museology*, Vol. IV, 1968.
13. Nair, S. M., *The Language of Museum Display*, *Journal of Indian Museums*, Vol. XXXIX-L, 1995.
14. *Proceedings of the 20th All India Museum Camp at Madras*, *Museum- An Educative Treasure House*, Government Museum, Madras, 1990.
15. Saraswath, S. K., *Modern Display Techniques in Museums: Professionalism and Salesmanship*, *Journal of Indian Museums*, Vol. XXXIX-L, 1995.
16. Satyamurti, S. T., *My Recent Observations in European and American Museums*, *Studies in Museology*, Vol. IX, 1973-74.
17. Shashi Asthana, *The Use of Dioramas and Models in Indian Museums*, *Museums and Museology New Horizons*, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
18. Sunjay Jain, *Exhibiting Coins in Museums*, *Journal of Indian Museums*, Museum Association of India New Delhi, Vol. XXXIX, 1983.
19. Vinod P. Dwivedi, *Displaying Decorative Art Objects*, *Modern Museum*, Ed. Smita J. Baxi and Vinod P. Dwivedi, Abhinav Publications, New Delhi, 1973.

MUSEUM LIGHTING

Museum lighting is a very important aspect in the display of objects. The purpose of museum lighting is

1. To illuminate the objects and
2. To fulfil the physiological and psychological needs.

Objects require light to be seen. The brightness of the object will of course not only depends on the intensity of light but also on the reflectivity of the surface illuminated. It is the reflected light, which we see and judge. As the surface of the exhibit cannot be changed, we must inevitably accept this as found, the lighting has to vary with the reflecting characteristics of the display.

The Nature of Light

Light can be divided into three regions according to wavelength. The human eye is sensitive to the visible region (from 400-700 nm) and a spectrum starting from violet, blue, green, yellow, orange, and red. Infra red (IR) radiation extends from the end of the visible spectrum to the longer wavelength. Ultra violet (UV) light has short wavelength. If the energy due to the electromagnetic radiation is absorbed by a material it may cause photochemical change (chemical change induced by radiation). If absorbed, short wavelengths are more damaging than the long wavelengths, since they are of higher energy, so UV light is more damaging than an equal amount of blue light. Red light is causing a negligible amount of photochemical change. In a museum about 50% of the photochemical change is caused by UV light and the visible light causes 50% of the damage. Dyes and pigments change colour; cellulosic materials (plant materials) viz. Paper, textiles and proteinaceous materials (animal origin) viz. Wool, feather are weakened. Therefore, it is important to limit the exposure of objects that contain these materials as far as possible. Day light contains the highest amount of UV light. UV light is measured in terms of microwatts or lumen or lux. 80-lumen light is acceptable level of light in a museum. Titanium dioxide is a very effective UV light absorber. UV filtering is not permanent and should be checked periodically, at least once in six months. UV absorber, Titanium dioxide containing plastic films are guaranteed for up to ten years. Sleeves for fluorescent tubes last for two or three changes of tubes.

According to G. Thomson, a good museum lighting is attained through a balance of good conservation, good taste and good engineering. The amount, colour and the angle of the illumination determine the degree of visibility of an object. More light is needed for objects whose colours are not distinct and which have minute details of design and decoration. The darker objects need more light. The distance between the object and the background may be made sloping. Visitor should be comparatively in a darker area. This is not possible if daylight is used. Anything other than exhibits should not appear to be bright as that leads

to distraction.

Both daylight and artificial light have their advantages and disadvantages. Best results should be achieved using these sources. Rapid contrast in the level of illumination from room to room and object to object in the museum must be avoided.

Properly controlled natural light is suitable for the presentation of true colour values, yet it is constantly subject to qualitative and quantitative changes, intensity angle and colour range. Artificial light has the advantage of reaching the most interior places. It is easy to install and control. It does not change with season and weather. By the influence of light, colour of an object varies. Blue and green colours under an incandescent light appear dull but bright under daylight. Diffused daylight is favoured in museum lighting.

Measurement and Control of Visible Light

The deterioration rate of an object due to light is directly proportional to both the light level and the time for which the object is exposed to light. Therefore, in order to reduce the damage due to light, the object may be exposed by reducing the light level and exposure time.

Recommended Levels of Illumination

Type of Objects	Type of Light	Illumination Level
Objects insensitive to light (Metal, stone, terracotta etc.)	Daylight, fluorescent light	300 lux
Most of the museum objects like Oil and tempera paintings	Daylight, tungsten light. Fluorescent light	150 lux.
Specially sensitive objects (Water colours, textiles, tapestries)	Preferably tungsten filament lamps. UV light	50 lux. 60 microwatts/Lumen

Among the lights used in a museum such as daylight, fluorescent lamps, tungsten and tungsten-halogen lamps daylight is the most difficult to control. Motorised blinds can control the daylight, which automatically regulates the light to 200 lux. This can be done manually but due to labour problem this may not be well maintained. The windows can be provided with a solar control film to cut off too much light falling on the objects.

Preventive Measures

There are various methods of preventing the damage due to light. Depending upon the availability of finance, infrastructure, engineering techniques, suitable methods of preventive measures are adopted.

1. The use of UV filters in frames, on lamps, windows and showcases.
2. Careful choice of background colours in exhibition area and the use of reflected light.

3. Dark light-absorbing backgrounds necessitate more highly illuminated areas and reducing this level to 50 lux makes for the gloomy exhibition or prints and drawings. Lighter walls surrounding exhibited works reflect the light, making for ease of viewing while keeping to the specified light level.
4. Careful choice of light source colour. Warm, rather than cool light sources are best for viewing.
5. Rotation of the collection.
6. Elimination of heat from light sources by means of fans and reflectors.
7. Use of facsimile prints and drawings in the place of originals.
8. Time switches in the rooms or on showcases. Blinds to cut down direct light. Night security light of 10 lux.

Types of Lights

Light generally can be broadly classified as natural light and artificial light. The natural light is the daylight and can be used in the museum in different ways. The artificial light is created in the museum using different types of lamps artificially. Daylight, artificial fluorescent lamps and incandescent spotlights can create mixed light. Artificial lighting give highlights and shadows to bring out texture and three-dimensional form of objects.

Both natural light and artificial light can be classified as direct light and diffused light. Direct light from fluorescent lamps, incandescent lamps, spot lights, false skylights, louvered lights and louvered ceiling etc., is used for lighting the objects either in a showcase or open displayed object. Diffused light can be obtained by passing through glass, which is ground. By this method the intensity of light is cut off as well as the light will be uniform.

In the European and American museums the galleries are with sky lights and ground glass ceilings through which a combination of natural and artificial light diffuses or with false ceilings provided with concealed spot lights embedded flush with ceiling or with arrangements for reflected light.

Natural Lighting

Natural light is drawn into the galleries through the openings either in the ceiling or walls. These may be arranged in many ways. In the V&A Museum, London direct natural light from the ceiling is allowed to fall on the sculptures and plaster cast images in the galleries.

Side Lighting

Windows placed on the sidewalls of a gallery give side lighting. Depending upon the need the windows may be at a high level or normal level. In case more wall space is needed, high windows are used. Unilateral lighting is obtained when windows are at one side. Bilateral lighting is obtained in case windows are available at opposite sides in a gallery. This is good for wall mounted exhibits such as paintings provided screens are used in the windows. In the case of sculptures, in addition to this, spotlights may be provided. But, windows produce glare to the visitors. This can be adjusted by using window blinds.

A continuous band of windows, ribbon windows, above the eye level on one side of the gallery give very good and uniform light. In Indian context, these windows can be kept on the northern walls. Window glare can be controlled by the use of sun breakers outside the windows which cuts off direct sunlight and reflects it by means of the concrete screens constructed at an angle outside the windows.

False ceiling at the level where the bottom of the window can diffuse high-level side lighting. The natural light along with artificial fluorescent lights above the grid panels will give a very good diffused artificial light.

Corner and End Lights

Big windows from floor to ceiling at the end or corner of the long walls give good lighting for wall mounted objects such as paintings. These lights give enough wall space for exhibitions. The glare can be cut off by suitable window blends. This type of light is provided in the Salar Jung Museum, Hyderabad.

Skylight

Skylight is used in most of the museums for museum lighting in the galleries. This light gives brightness to the floor and the visitors. Using diffusing glass or louvers the skylight can be cut off. In the V&A Museum, many galleries enjoy sky light through the transparent ceilings.



Sky Light, V&A Museum, London

Artificial Lighting

There are two types of artificial lighting. They are:

- 1) Direct lighting and
- 2) Indirect lighting.

Direct lighting is the light direct from a light source. The object in a showcase or displayed as an open display may be directly lighted.

Fluorescent Light

Luminous efficiency of fluorescent lighting is 2 to 5 times that of incandescent lamps, and is cool. These should not be direct to paintings, textiles and other sensitive organic materials as it contains UV rays.

Spotlight

Spotlights are spotted on the objects to highlight them. They are adjustable. Even though

spotlights are good for sculptures, they should be avoided in the case of delicate objects like, paintings, textiles, paper objects etc., as they produce heat.

False Skylight

For general lighting in the gallery, fluorescent lamps or incandescent lamps are fixed above frosted glass panels introduced in the false ceiling.

Louvered Light

Louvered lights are nothing but light from fluorescent or incandescent lamps by throwing the light downwards diffusing them by means of louvers. The louvered ceilings are made out of crossed strips of metal or plastic and in rectangular units, fitting them together to give an entire overhead grid, through which light from lamps above passes, at an angle.

Trough Light

Trough lights are surface mounted fixtures, either covered with lenses or glass or open. It has to be tilted to direct the light. For picture galleries, the whole rectangle of trough lighting the four walls is built in by dropping the whole central part of the ceiling to the level of lower rim of troughs. This gives good indirect light.

Troffer Light

Troffer lights are panel luminaries, which are set flush in the ceilings. They are covered by special directive lenses which can place the light at an angle over the wall or wherever required. This contains separate lights for general lighting and for spots. The troffers are in box like units, distributed as per requirements, or in long trough like units set end to end. The light can be focussed, projected parallel or spread and the beam may be thrown to the place where it is needed.

Cove Light

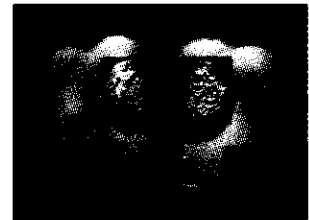
Cove lighting is a concealed light source. This light gives uniform light by reflecting the light to the ceilings.

Suspended Fixtures

These are the lights suspended from the ceilings. Ceiling panels may be rectangular, square, or circular. It can work with incandescent or fluorescent lamps. This type of ceiling has relatively high brightness but has ornamental appearance.

Specific Lighting to Objects

Sculptures should be lighted by fixing spotlights. For the proper visibility of specimens, it is necessary that the background should be as inconspicuous as possible. Different switch boards, for the general lighting and for each showcases are highly desirable to keep control of light in the galleries.



Dichroic Halogen Lighting

Fibre Optics

Due to the effectiveness and versatility of the fibre optics, now a days fibre optics have come into the museum usage. The European museums have started using fibre optics as they are

1. Easy for installation
2. Maximum in their performance
3. No electric emissions
4. Very safe and highly dependable
5. Suitable for inaccessible or hazardous locations
6. Energy efficient
7. Bright and clear light
8. Dramatic and special effects
9. Free from emission of heat and UV light
10. Cost effective.

The Government Museum, Chennai has used Fibre optic lighting in lighting Raja Ravi Varma paintings, and in the Bronze Gallery to give cosmic effect by changing colours.

Dichroic Halogen Lamps

The dichroic halogen lamps are nowadays used in museums in order to disseminate the heat produced to the back of the lamp. This type of lamps do not affect the objects by heat. They give very good appearance to the objects.

Bibliography

1. Bedekar, V. H., Using Natural Light for Museum Exhibition, *Museology: New Horizons*, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
2. Michael Brawne, *The New Museum Architecture and Display*, Frederick A. Praeger Publishers, New York, 1965.
3. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
4. Satyamurti, S. T., *My Recent Observations on European and American Museums*, *Studies in Museology*, Vol. IX, 1973-74.
5. *Workshop on The Museum Building and Environment*, Melbourne, Australia, 16-20 October 2000.
6. www.optilight.com

CHAPTER VI

SECURITY

Museum security is a mechanism that provides for the protection of collections, equipment, information, personnel and physical facilities and that prevents influences that are undesirable, unauthorised or detrimental to the goals or the well being of the museum. Museum security is the philosophy and activity of providing an environment in which people and objects may be as free from threat as possible. Security is not only the job of security personnel but also it concerns every one who works at the museum and who visits the museum. Security is not just the public accessible parts of the institution, but all other parts as well.

The security requirements will be better understood if they are considered under the following categories.

1. Design and planning
2. Qualification of risk
3. Surveillance and alarm systems
4. Management and training of security personnel
5. Liaison with local authorities
6. Documentation, records and controls
7. Cost of security personnel, operation, equipment and insurance
8. The use of independent consultants.

The security of premises of a museum, its collections and the data they contain, the staff and visitors is of vital importance. Since the artefacts of the past preserved in the museum are the only evidences of our ancient art, culture, history and science, it is obligatory on the part of museums to take all precautionary measures and use all devices to safeguard the priceless collections. Even though, there is legal protection of antiquities in our country, a large number of antiquities, art objects etc., from various Indian museums are being stolen and smuggled out of the country. There are various dangers to the museum objects from various angles. The objectives of any museum system designed to deal with a security threat are:

1. Detect something wrong
2. Communicate that information rapidly and reliably and
3. Take effective action.

Several elements, which contribute to the security in museums, are:

1. Staff
2. Barriers
3. Collection Management Practices
4. Environmental Monitoring

Staff

Alertness and keen observation are the very important qualities required in the security staff. Even though the security job mainly bestowed on the security personnel, all the other staff also have their share in the security of the museum objects. Every staff member should be alert and conscious of changes in the collections, environment, and behaviour.

Barriers

A barrier is some thing, which comes between a visitor and an object. There are many physical barriers like barricades: fences, railings, glass, Perspex, transparent polymers, spreading pebbles, painting colours, maintaining difference in levels or even simple space. An effective and time-proven method of safeguarding both the visitors and the objects is using barriers. It is to be recollected that in Japan the objects are exhibited in the open either on the walls or pedestals, the disciplined Japanese public is not tempted to touch the exhibits, which are firmly fastened to their backgrounds and not, for the most part delicate of fragile.

Collection Management Practices

Collection management practices involve safety of objects in their environment, correct handling practices, and proper documentation of object movement and treatment. Using careful and proven collection management standards and practices can ensure environment security. Proper housekeeping practices keeps the environment clean.

Environmental Monitoring

Regulating the environment surrounding the collections is very important for the object security. The wider concern is controlling the climate with in the whole facility or providing microclimate in the showcases. Now-a-days, digital environmental monitors, recording type of monitors to monitor relative humidity, temperature, light level, ultra-violet light level etc., are available to monitor these parameters to have a suitable environment.



All in One Monitor

Care in the Collection Management

Much of wear and tear, as well as accidental damages to museum objects can be significantly reduced by the judicious application of collection care management and adapting certain basic conservation principles. Many damages to the museum objects are attributed to the poor handling, lack of training to staff, neglect and vandalism.

Mishandling

Human factors such as poor handling and lack of training to staff to tackle objects result in serious damages to the objects either in the gallery, storage or while transportation. Careless handling of the object results in soiling, dents, scratches, abrasions, breakage etc. Damage occurs when objects are dropped, objects tear or break when outsize or heavy objects are hand-carried instead of being transported on padded trolleys. Objects break when they are

lifted from points of weakness. Surfaces of objects get damaged when they are dusted or cleaned with coarse or soiled cloths, brushes or vacuum cleaners carelessly.

Neglect

Neglect of object results in many problems. Areas where any type of work on art objects is done must be kept absolutely clean. Very often it is noticed that perspiration and grease of hands stain the art objects. The natural oils from hands, deposited on objects, attract much dust, which is chemically harmful. It is advisable to wear clean cotton gloves when handling objects of art, or to use a clean cloth between hands and the object. Hands should not touch the painted surfaces, as in the case of miniatures or manuscripts, photographs or slides and negatives.

Vandalism

Vandalism is a deliberate or wilful act by which damages are made on the museum objects. Acts of true vandalism are fortunately a few. The visiting public is generally respectful of the works of art on display. The motivation of the deranged individual to damage the objects take place in crowded galleries. The defacement of paintings or sculptures with graffiti by pencils, felt pen, ink, tar, oil etc., particularly on nudes and female figures have moral and behavioural connotations which require study by psychoanalysis. Other instances of wilful damage can be attributed to political, religious, ethnical, linguistic or racial fanaticism. I instances of damaging paintings by knife, pen, nails are recorded in museums. The author himself being a Conservator has restored paintings, which were damaged by the visitors wilfully. There are instances, where the visitors inscribe their names on the objects itself as a token of their visit to the museum. Some times objects are smeared with oily substances as a mark of respect to the gods that they represent. Touching the feet of images out of reverence or fondling certain parts is quite common and these kinds of activities make an image unnecessarily glossy in patches. Improper method of storage, improper handling, packaging, and transportation, defective lighting arrangements and so on so forth are also equally damaging the museum objects amounting to the human vandalism.

In the majority of situations the conservation and security precautions in museums are sufficient to prevent accidental damage, negligence and to inhibit the less determined vandal. These measures include physical or psychological barriers, such as putting *rangoli / kolam*, floor elevations, spreading river pebbles; ropes and stanchions or the total encasement of the objects in show cases. These barriers will deter many visitors from approaching too close and touching, marking or accidentally scratching the objects. However, mischievous visitors will find ways to outwit the guard. Other means of security protection depends on the guard's perception of deviant behaviour on visitors. Close Circuit Television (CCTV) scanning of queues of visitors can often pinpoint strange behavioural patterns and the guard on duty can be alerted to be more watchful of the individual spotted. Another method is to pass the visitors through airport style security electronic barriers, metal detectors etc., and remove potentially harmful devices.

Standards for Protection against Theft

There should be standards for protection of the building, types of alarming devices, invigilation and security of keys.

Standards for Protection of the Building

1. The area or the building where the museum collections are kept should be capable of withstanding possible attack by an intending thief or a vandal.
2. Windows and doors must be defended well so that an intruder is deterred from trying to get in or is delayed long enough to allow a supporting intruder alarm to trigger a response before the intruder can enter, steal and escape.
3. Show cases must not be regarded as the primary protection against theft of display material when the building is unoccupied. Their construction must provide a level of security appropriate to the risk.

Standards for Alarms

1. All openings in the building fabric, such as doors, windows and roof-lights, must be fitted with intruder detectors. An intruder detection alarm system which qualifies the specifications of security.
2. The system should be as simple as possible to avoid false alarms.

Standards for Invigilation

1. The level of invigilation of the displayed and stored objects should be appropriate to the risk.
2. The entry of the researchers and other students should be registered and they should be adequately supervised.
3. When out side contractors are allowed to work proper guidelines should be followed and also provided with identity cards.

Standards for Key Security

1. A strict policy regarding the possession of keys must be devised and enforced.
2. There should never be more keys than is necessary and the number of people in possession of keys should be kept to the barest minimum. All keys other than the external door keys held by the key holders, and keys to safes should remain within the building in a secure key cabinet or safe, and should be identified by a coding system. An issue system against signature should be issued as a security measure. The key should not be with a person for long time enabling him to get a duplicate key.

Security Measures

Museum security can be broadly classified in to two categories. They are

1. Internal security and
2. External security.

1. Internal Security

The curatorial staff of the museum is responsible to a certain level on the security of the objects in their collection. It is always better to have a photographic album of the objects displayed in the gallery. Some museums have a register in the gallery, which contains particulars like the list of objects, size, and materials so that the gallery staff can point out the missing object. Some museums write down the name and number of objects in each case. It is the look out of the Curator to photograph all the objects and have an archive of negatives so that any photograph is lost it can be replaced at a reasonable time. An authentic and systematic documentation of the museum collection not only helps in identifying each and every museum object but also saves from legal implications in case of theft and robbery. Therefore, the curatorial staff should contribute to the inner security. Annual verification should be done to see the availability of the museum objects. There are instances in the history of museums that many objects were found lost for which no one was responsible. Vulnerable objects like coins, bronze sculptures, jewellerys, and precious stones and other rare objects should be kept in strong rooms and should be shown only to the interested persons who have got prior permission. The strong room should be constructed by concrete and iron grills where ever necessary with double lock and key system and the duplicate keys should be kept sealed and kept in the treasury or police custody and once a year they may be checked and re-deposited in the treasury or to the police. Each gallery should be provided with gallery guard at all the times. The hide out places should be avoided. All the show cases, doors, etc., should be locked. The galleries should be opened in the presence of one of the curatorial staff or security officer or police and he should certify that all the objects are found and all the cases are found locked. When ever an object is taken from the showcase, it should be recorded and the gallery staff should sign in the register. A note to the effect should be kept in the showcase so that the gallery staff who comes to duty following the incident will be able to take note of it. The head of the gallery staff, an administrative staff such as the duty clerk, security officer, duty officer, and the concerned curatorial staff can go round the galleries from time to time and reduce the risk. On holidays duty officers may be posted who will check the activities during the holidays. The directors make surprise checks from time to time. Gallery guards are responsible for the safety of the exhibits, furniture, and fittings inside the gallery. In case there is power failure, an alternative arrangement should be made immediately. Power generator may be kept ready. Emergency lamps can be kept in every gallery. There should be provision for separate switchboards for galleries, administrative blocks, verandas and connecting corridors and they should be properly named to identify them easily at the time of emergency.

2. External Security

The external security means the protection of the museum objects from theft, burglary, vandalism, fire, flood etc. All these devastating factors, which cause irreparable loss and destruction to museum objects, emanate from the museum building. Therefore, proper security measures should be taken to the building. Museum should not be lonely. The museum must have minimum entrances and exists to restrict the movement of museum visitors. The

ventilators and the windows should be provided with grills or gross bars. There should be adequate visibility in all parts and around the building. It should be well lit during the night. Well-secured iron grills for perimeter and fence entrance gates, which provide visibility of landscape as well as security, should be provided in the lay out itself. The drain pipes, sewage pipes and water supply pipes provide easy access to the upper floors and terrace. They should be either concealed or wound with barbed wires. The compound wall must be fitted with spikes or broken glass pieces to check unauthorised entry. The main entrance of the museum building and the doors of important galleries are provided with the collapsible metallic doors, which ensure extra strength and visibility inside. Electric alarm system may be installed to alert the security staff at the time of theft. Old locks should be changed and new standard locks should be provided and the duplicate keys should be deposited with the treasury or police. Gate passes issued should be signed by the heads of the various sections. No gate pass should be held valid unless the security section countersigned it. Tall trees near the museum building should be trimmed to avoid scaling the museum building. It is better to check the night security measures by surprise checks by senior officers of the museum besides the check by the security officer. Museums have police patrol also during nights.

Thefts and Burglaries

Taking proper control measures may prevent thefts and burglaries in museums. They are both manual and mechanical including electronic.

Manual (Security Staff)

Experience of many museums have proved that nothing can replace the manual security which consists of the security staff and the watch and ward appointed in the galleries to have a constant vigil during the day and night. Many museums have their own gallery staff, headed by a security officer. Other museums have police force also in addition to their own security staff. Museums like National Museum, New Delhi, Salar Jung Museum, Hyderabad have the Central Industrial Security Force in addition to their own. Security staff should be very carefully selected. Bad elements should not be kept in the security. All the staff should be trained in fire fighting, shooting, public behaviour, law related to the antiquities, general information about the safety of the objects etc., so that they can swiftly act at the time of emergency. Telltale clocks may be installed at vulnerable points. Mirrors may be fixed in the galleries to monitor the movement of the visitors in the gallery. In Indian Museum, Kolkata there is three orders of security staff. They are the museum security staff within the galleries; private security staff in side the campus; and state police cordons out side the campus. In the Chennai Museum the gallery guards look after the security of the objects along with ex-service men (TEXCO); the watchmen and the TEXCO staff look after the security out side the galleries; and the police outpost inside the campus provide the round the clock vigilance along with the TEXCO staff and also the galleries are open and closed in the presence of the police and the locks are sealed. The keys are sent in a sealed box to the Police Commissioner's Office every day for the security of the keys of the museum buildings.

Mechanical and Electronic Devices

A number of mechanical and electronic devices are now available in the market, which can be used by museums and art galleries to strengthen the security. Tell tale clocks were extensively on use in the museums. The mechanical devices at times do not properly function which create a lot of problems and reduces the alertness of the security force and lays more dependence on the mechanical device. Even the false alarms may bring lethargy in the security staff to respond to an alarm during emergency. Testing of the emergency alarm should be done regularly after informing the staff and visitors so that they will be alert. Night time security depends, in addition to patrols, on preventing entry, or if this has been achieved, its immediate detection. Grills or shutters can detect opening and they can also be wired to a central system so that if they should be opened an alarm is set off. Therefore further methods in which an infra red light is directed from a projector at a receiving unit, which may be up to 2500 feet away, and an alarm is given off if the ray is broken. Another method particularly useful for storage rooms is Closed Circuit Tele Vision (CCTV). Tell tale clocks may be fixed at different points of the building where the watchmen should go and punch the clock at specified hours in order to check whether the watchmen perform their duties properly.

Museum Television Security

Closed Circuit Television provides an important contribution to safeguarding works of arts in museums. The closed circuit television system extends the eyes of the museum staff to a given area in order to prevent vandalism or theft of precious works of art. The success of closed circuit television in the prevention of these is a result of the following:

1. The deterrent effect of a visibly displayed camera
2. The current use of closed circuit television cameras to provide surveillance of potential vandals or thieves.
3. The availability of low-cost, high quality television systems
4. The ability of a guard force to respond immediately when a criminal act is observed and
5. The ability of the closed circuit television video recorder to provide a permanent record later viewing by police or in court room use for conviction for specified days.

Closed circuit TV is the equipment used invariably in all the European museums to monitor the unauthorised entry into the museums. Closed circuit television sets are installed in National Museum, New Delhi, Indian Museum, Kolkata, Government Museum, Chennai etc., and are watched by the officials concerned. A single staff along with sundry jobs in small museums can look after the museum if the CCTV is installed. What ever may be the system followed, human alertness is very much required. CCTV will not catch the thief, but it can record the incident of theft etc. Good locks are always better in the museums and they should be changed at a specific period so that the failure can be arrested. In certain museums the duplicate keys are made by the museum itself with in the museum in order to avoid unnecessary security problems.

1. Passive Intruder Alarm System

The passive intruder alarm system consists of a number of seismic sensors connected by wires to a remote display unit. It detects ground vibration of human beings, vehicles etc. In this case the air-conditioning plants etc., should be kept closed or it should be away from the equipment.

2. Electronic Surveillance System: (weed)

As the human being or vehicle moves towards or away from the instrument, weed, the action causes a rising and falling in the speaker.

3. Seismic Intrusion Detector

This detector detects the movement of human beings, animals by vibration. The instrument cannot function where there is an air conditioner near by. If the road is near by the vibration due to the vehicular traffic will also give problem to this device.

4. Electronic Burglar Alarm System

Burglar alarm functions by the working of a photocell. When shadow caused by the movement of human beings, animals etc., are detected the instrument makes noise.

Check List for the Security in Museums

Internal Security Arrangements

1. Are the windows, ventilators, sky lights etc., provided with grills or similar safety devices?
2. Are the grills strong enough?
3. Are the grills keeping with the aesthetics of the building?
4. Are all the entrances and exits properly guarded with collapsible gates?
5. Are the locking arrangements in the building such that they cannot be easily tampered with?
6. Whether the number of gallery guards is adequate?
7. Are the gallery guards/attendants any time off during the working hours of the museum and if so, what is the arrangement for their replacement?
8. Who attends to the locking and opening of the galleries?
9. When is the cleaning of the galleries done?
10. Is there proper supervision at the time of the cleaning of the galleries?
12. Where and with whom are the keys deposited?
13. Where are the duplicate keys placed?
14. What is the provision for the availability of duplicate keys in an emergency?
15. Are the Security Officer and the night guards given accommodation near the museum building?
16. In what way does the Security Officer exercise this at night?

17. Is there a provision of telltale clocks inside the museum?
18. Is there any electrical gong alarm system in the museum?
19. Is there a burglar-proof system? Is it working satisfactorily?
20. Is there place in side the galleries where one may hide out?
21. At the closing time, how is it ensured that the galleries are clear of the visitors?
22. Are all the showcases are provided with locks?
23. Whether all the rare antiquities are displayed within the show cases?
24. Is there any gallery or strong room that can be considered burglar proof?
25. What is the system of locking the special gallery?
26. What is the system of admission to the special gallery?
27. Is there any access from the gallery to any other office or technical rooms?
28. Are the entrances to air-conditioning and electrical units independent or through the galleries?
29. Are the accesses to the basement and the roof duly provided with locking arrangements?
30. Is there any alternative arrangement for lighting when electric supply fails?
31. Are there separate switchboards for galleries, verandas and connections outside the museum?
32. Is there any telephone accessible to the guards at night?

External Security Arrangements

33. Are there sufficient guards for patrol duties around the museum?
34. What are the duty hours of the guards?
35. Is there any supervisory staff for the guards during night?
36. Are there armed guards?
37. Is there any telltale clock system? If so how many points are there?
38. Is there any compound wall or fencing around the museum?
39. Are the gates of the compound wall or fencing duly provided with locking arrangements?
40. Is the building easily scaleable?
41. Is the down taking pipes from the roof covered with barbed wire so as not to be easily scaleable?
42. Is there yard lighting or flood lighting around the museum?
43. Whether locks are sealed?
44. What is the system of opening and closing?
45. Is there any register of gallery opening and closing?
46. Whether Police is on security duty?
47. Any inter communication system available?
48. Is there any electronic security gadgets available?
49. Whether periodic checking is made?

FIRE SAFETY

Fire is another devastating agency, which completely destroys objects such as organic objects and in-organic objects. Even metallic objects like lead also will be damaged. Fire safety is an important aspect to be cared for.

Causes of Fire

Fire in a museum can occur due to various factors. They are:

1. Electrical and mechanical factors
2. Chemical factors and
3. Human factors.

Electrical and Mechanical Factors

Electrical installation, electrical fittings, defective air-coolers, air conditioners, exhaust fans etc., are the main reasons for the break out of fire in museums. The cause for most of the fire in museums in the past is the failure of the air-conditioners. In order to overcome this problem substandard materials should never be used and the wiring should be renewed from time to time. Heavy loading of the wire should be avoided. In any case the loading should never be increased with out the knowledge of the electrical experts.

Chemical Factors

Museums have conservation laboratories or other biological sections where chemicals are used for the conservation work. Some times while painting of the galleries is done paintings and other inflammable chemicals are used. The negligence in their use causes fire in the gallery. Even at times the gas used in the canteen also results in fire in the museum.

Human Factors

Human factors are creating a lot of problems as far as fire breaking is concerned.

a. Smoking

Fire in museums erupts due to smoking. Smoking in museums is prohibited both in the galleries and offices.

b. Open Fire

Open fire should never be used in side the museum. In the case electric failure some small museums use kerosene lamps or candles. It should not be the practice. In such cases emergency lamps or torchlight may be used. Even while sealing the museum doors or security almyrahs, care should be taken to avoid fire. No material should be fired inside the galleries.

c. Equipment

The use of defective equipment, heaters etc., are posing a lot of fire hazards in a museum.

d. Use of Inflammable Materials

Some museums use motor generators for the lighting in case of power failure in the museums. The motor generator rooms should be away from the main galleries. The petrol or diesel used in the motor generator rooms should be very carefully handled. If the generators are inside the galleries, there is fire risk, smoke and vibration which are harmful to the museum objects.

e. Wars and Rioting

Wars and rioting in the past have damaged many antiquities and museum objects. During the world wars many museums took precautions to safeguard their objects. In Iraq the National Museum was ransacked. Bahmian Buddha sculpture was ransacked. Similarly during the riots also there is a possibility of keeping bombs in museums. Large museums do check for these fire weapons when visitors enter the museum. The Bhandarkar Research Institute, Pune, India was ransacked in the recent past. But none of the manuscripts were damaged.

The Principles of Fire Extinction

The fundamental principles to prevent fire are:

- a. Prevention of fire from starting
- b. Fire detection no sooner it starts
- c. Fire extinction at the earliest without causing any harm to the objects.

Standards for Protection against Fire

1. The museum building must be designed or adapted to minimise the risk of fire and to prevent its spread.
2. Areas housing collections must be rigorously insulated to a high standard from fire spread from areas of risk. The degree of risk from risk areas must be reduced as much as possible.
3. All electrical wiring and equipment must be installed in accordance with the electricity at work regulations and must be regularly maintained and checked.
4. The Fire Officer's advice must be sought on the selection of all materials used in displays and storage areas. Normally all such materials should be fire retardant. He should be consulted when alterations to the buildings are to be carried out.
5. After proper survey of the building and area, the type, number and location of fire-detection sensors, fire-fighting equipment should be decided.
6. Fireproof cabinets must be provided to house the museum documents and records.
7. All staff and volunteers must regularly attend training in fire prevention and response.

Fire Extinction

The break up of fire should be intimated to the fire service station at once. Extinction of fire differs from object to object and from one type of fire to the other. One must know the types of fire and the type of objects near the fire so that the type of fire extinction may be decided and fire put out without much damage to the objects. There are three types of fires. They are:

1. Class A fire (fire on ordinary combustible materials like paper, wood, etc.)
2. Class B fire (fire on inflammable materials like oil, volatile chemicals etc.)
3. Class C fire (fire on electrical installation).

The fire fighting equipment also varies with the type of fire. The common type of fire extinguishers are soda acid type, foam type, carbon di oxide type, dry chemical type, halon type. Soda-acid type of fire extinguisher is based on the action of acid on sodium carbonate solution giving out a powerful stream of water with carbon di oxide. It is only useful to extinguish the class A fire.

Foam type fire extinguisher is based on the principle that it gives off thick foam, which covers fire and oxygen supply is cut off. It is also effective only for class A fire. Nowadays soda-acid fire extinguishers are banned.

Carbon di oxide type and dry chemical type fire extinguishers are used to extinguish all types of fire. Halon type fire extinguishers are very much in use these days and are very effective. This contains Bromo chloro difluoro methane. This is also not good for health and its production is now stopped. The dry chemical fire extinguisher contains Sodium bicarbonate and Carbon di oxide and the carbon di oxide brings out the powder. ABC Powder type fire extinguisher contains mono ammonium phosphate and carbon di oxide. This is good for all the three types of fire.

Fire extinguishers should be kept in conspicuous places. Their periodic recharging on the dates recommended by the manufacturer is absolutely necessary, as the chemicals inside them do not remain effective indefinitely. Annually they should be recharged.

Standards for Protection against Flood

1. As far as possible no pipe work or tanks must be permitted in new buildings in areas where collections are kept; every effort should be made to exclude paperwork from such areas in old buildings.
2. Objects, which can be raised, must be placed higher than about 15 centimetres above the floor and away from the walls.
3. Where there is a risk of water leaking from above, the tops of shelves and showcases should be protected with polythene sheeting. Waterproof boxes, cabinets, etc., should be used where ever possible.
4. All staff and volunteers should receive regular training in flood prevention and response.
5. The danger of water damage as a result of fire should be regularly discussed with the fire brigade.

Standards for Disaster Planning

Disaster in a museum can be a leakage, insect infestation, fire, flood, theft, earthquake, tsunami, war, etc. Disaster management is important in a museum. The disaster plan is a written document, which sets out procedures to be followed in an emergency. All staff should know its general contents by suitable means. The plan should include:

- Responsibilities of staff, method of raising alarm and communication to others;
- Emergency telephone numbers, including home numbers of staff;
- Confidential plan of building showing services, hazardous stores, etc.
- A separate copy of this should be available to the fire brigade on arrival;
- Priorities in mitigating damage to the collection;
- Sources of relevant expertise, including conservators and nearby museums, archives, etc., as agreed before hand;
- List and locations of materials and equipment;
- List of suppliers and services of equipment
- Security measures for the collections if premises damaged, e.g. pre-arranged safe storage;
- First aid measures for damaged collections, by type of material, drawn up in consultation with Conservators.
- A complete record of the collection and its disposition within the store or display should be available at a distance from the collection itself, and a duplicate should be held in another building.

First Aid

It is important for all the gallery staff to know about first aid as they could be the first ones on the spot to give immediate attention to a visitor. Quite often it is noticed in museums that a visitor hurts oneself during the visit. I have seen in my service many visitors had hurt them and broken showcase glass and found bleeding. The author himself had attended to the patient in the laboratory of the museum. It is important that training in first aid should be given with the help of either with Red Cross or John Ambulance First Aid training. The first step is to have a first aid cupboard or box in a central location. This may be available with the reception or with the security personnel. The cupboard must contain medicines and dressing materials. The box and the required materials can be had from any medical accessory materials shop.

Checklist for Fire Prevention

The security personnel in the case of large museums or the Curator in the case of small museums must personally supervise the use of the checklist. Any items that are shown as effective as a result of the review should be promptly entered in a logbook for correction. A notation should be made in the logbook when the defect is rectified. The following should be checked at least once a month.

1. Whether a chart containing the important phone numbers of the fire brigade are available at the sides of the staff in-charge of the sections.
2. Test fire alarm system regularly.
3. Check the loss of fire extinguishers.
4. Whether the fire extinguishers are visible.
5. Check watch and ward charts.
6. Check the doors and shutters for defects.
7. Are there clean house keeping conditions?
8. Checking the No Smoking sign boards.
9. Check the emergency doors and locks for immediate use.
10. Check for the removal of waste from the locality then and there.

Bibliography

1. Chada, S. K., Fire Hazards and Its Prevention in a Museum, *Journal of Indian Museums*, Vol. LII, 1995-96.
2. Dixie, K. N., Museums, Monuments and Security, *Journal of Indian Museums*, Vol. XXVII-XXVIII, 1971-72.
3. Dixie, K. N., Theft and Smuggling of Antiquities: Some Preventive Measures, *Museums and Museology, Journal of Indian Museums*, Vol. XXVII-XXVIII, 1971-72.
4. Grace Morley, *Museums Today*, Department of Museology, Faculty of Fine Arts, M. S. University of Baroda, 1981.
5. Ha, R. C., and others, *Theft from Museums*, *Journal of Indian Museums*, Vol. XXV-XXVI, New Delhi, 1969-70.
6. *Indian Museums Review*, Ministry of Scientific Research and Cultural Affairs, Government of India, 1957-58.
7. Jeyaraj, V., *Handbook on Conservation in Museums*, Published by the Commissioner of Museums, Government Museum, Chennai, June 1995.
8. John E. Hunter, *Introduction to Museum Security, Museum, Archive, and Library Security*, Ed. Lawrence J. Fennelly, Butterworths, 1983.
9. Michael Brawne, *The New Museum Architecture and Display*, Frederick A. Praeger Publishers, New York, 1965.
10. Michael Brawne, *The New Museum Architecture and Display*, Frederick A. Praeger, Publishers, New York, 1965.
11. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
12. Paulhus, J. L., *Museum and Gallery Security management Techniques, Museum, Archive, and Library Security*, Ed. Lawrence J. Fennelly, Butterworths, 1983.
13. Searcher, H., *Museums and Protection of monuments and Antiquities in India*, Sundeep Prakashan, Delhi, 1981.
14. Sudhir Andrews, *Hotel Housekeeping Training Manual*, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1995.
15. www.artloss.com

CHAPTER VII

STORAGE

Collection of antiquities and other objects representing our past continues in any museum. Even though museums are going on collecting, all the collected objects are not put on display. Only a part of the collection is displayed. In some large museums about 90% of the collection can not be displayed. In this situation the objects have to be placed in a safe place. Now comes the problem of preserving the treasures of rare and valuable objects and specimens, which can not be replaced easily. The storage is otherwise called *Reserve Collection Room*. Every museum must set apart enough space for the reserve collection or storage. While selecting the storage space, provision has to be made for the study and working spaces. The storage should be strong including the floor. The museum storage should be well maintained in order to prevent deterioration. It is highly essential that the storage is properly lighted, well ventilated and adequately guarded, where the objects can be well preserved and safeguarded against deterioration, decay or damage. In short, the museum storage is a safe place for the objects where they are equally cared for as they are in the galleries. In general, storage is essential for the following reasons:

1. It gets better attention of the curatorial staff so frequently cleaned and chemically treated.
2. The objects are better preserved, as they are not exposed to the visitors.
3. Serves as documentation centre.
4. Enables research scholars to handle the antiquities and make direct and first hand study.

Location of Storage

Location of storage in a museum is as important as the maintenance of the storage. The location plays an important role in the upkeep of the objects stored. It is better to select a place for the storage preferably in the ground floor, which is easily accessible from the entrance for in and out of the objects. The entrance of the storage should be reasonably large for the transportation of the objects. If the storage is in the higher floors it is advisable to see that the floor has sufficient strength to bear the load. If the storage is by the side of the road it is advantageous to have easy transportation. Basement is not suitable for storage as there will be high humidity and temperature and in the rainy season it will be highly difficult to maintain the environment as there may be water seepage being under ground. The storage should be nearer to the curatorial staff. It will be highly useful if the storage and the gallery are sandwiched by the curatorial room. However it is necessary to protect the objects in the storage wherever it is located against theft and fire hazards. Most of the museums have the storage within the museum campus. It is easy to maintain the storage. Some museums have the storage at different places and separate staff maintains the storage. The Louvre Museum, Paris, Victoria and Albert Museum, London have separate storages away from the Museum.

Storage Furniture

The equipment and furniture needed for museum storage have to be specifically designed and executed as per the requirements of different categories of objects, their sizes and shapes and the climatic conditions needed for their preservation. Space available in storage is limited in most of the museums. Some museums have storage space equal to the gallery space. Museum objects vary in size, shape and weight. The physical condition of the objects is an important consideration for deciding the storage methods. Since the space available for storage is never sufficient in a museum, it is advisable to use the space from floor to ceiling, but while doing this, care must be taken to arrange the collections in respective places according to their condition. Wood is good for storage furniture. Even though steel is sturdy it is hard and hence it can make scratches or the edges may cut the objects when objects are carelessly handled. The use of the trolleys, having ball bearings and rubber-tyred wheels is necessary as working table in the storage. Storage area should be designed or modified to maintain conservation conditions. The room should be sound, dry and clean. Lifts, passages, doors etc., should be reasonably large and accessible to trolleys and large containers. Heating systems and sources of vibration should be away from the storage.

Storage Devices

The basic principle of storage is to keep the objects in a physically secured environment and yet to permit ready access for inspection before their removal to the galleries, storage or other locations. There are various storage devices and they are expected to meet the physical and environmental criteria intended for preserving the museum objects.

Stacking

Paintings and flat-framed works like prints, photographs may be placed on pads and stacked vertically using cardboard as separators. In group stacking, it is necessary to ensure that the pads are skid-proof, that the angle of stacking is average, and the largest objects are kept first. Three-dimensional objects should be placed on pallets to permit easy handling and lifting.

Shelving

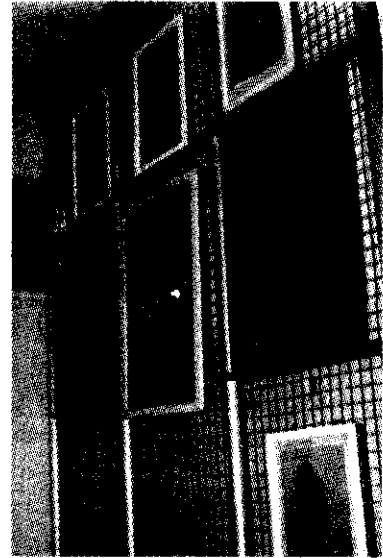
Shelves may be considered either by wood or preferably by metal for storage of two-dimensional objects. Vertical slots may be designed for flat items and bays set up for objects. Boxes of different sizes may be made and objects kept wrapped with acid free paper inside. This method will utilize all the spaces available in the shelves, when there is only a limited space.

Drawers and Cabinets

Drawers are used for flat works of art on paper, cardboard and textiles, maps and similar items and also when appropriately designed, for small objects. Interleaves of acid-free tissue papers are used. The drawers for coins are with slots in them. Cabinets are also used for two-dimensional and three-dimensional objects.

Sliding Screens

Sliding screens are very common for paintings and flat works and occasionally for decorative art, arts, which can be suspended by appropriate hooks. Such system is economical of floor space and is efficient for examination and retrieval purposes.



Sliding Screen

Compaction Devices

Compaction device is fairly recent in the museum world and answers in the requirements for more storage and less space. Compaction equipment is intended for permanent storage primarily. The compaction units are either electrically or manually operated. The manual type of compaction equipment is probably more useful for museum storage, as it is less likely to go wrong. In this type normally textiles are preserved. Such device is available in the V&A Museum, London. Salar Jung Museum, Hyderabad has got such provision to hold the textile collection.

Vaults

Vaults and security storage areas are used for extremely valuable objects, e.g. gold and silver coins, precious stones or other treasures like gold, silver and diamond jewelleryes.

Arrangement of Objects

The arrangement of objects in the storage is very important. Handling of the objects quite often spoils and therefore it is better to keep them in such a way that they are not disturbed in the storage. Therefore it is always ideal to arrange them by a system which will enable the curatorial staff to check them and making the scholars to study them without touching them or taking photographs without shifting them to other places.

1. The objects may be arranged according to their accession numbers to make the verification easy.
2. School or period-wise arrangements can also be done. It will be useful to researchers.
3. Objects can be arranged site or region wise. This will help the scholars and the curatorial staff to get the information easily for their studies.
4. Objects can be arranged theme or subject-wise. This also will help the scholars and the curatorial staff to get the information easily without touching them.

Protection within Storage

1. Storage areas and equipment should be fire proof, proper conditions of temperature and relative humidity should be maintained and dirt should be prevented from entering.
2. Adequate lighting should be there at the time of handling only.
3. Monitoring of temperature and relative humidity should be regular.

4. Area should be clean and uncluttered.
5. Handling equipment should be near by the storage to handle large objects.
6. Gloves or soft cloth may be used while handling silver objects, paintings etc.
7. There should be trained personnel in physically handling the stored objects.

The storage should be maintained as that of the gallery. Since more objects are available in the storage much attention should be given to the storage to preserve them for posterity. Therefore proper lighting, ventilation, weather control system etc., should be provided.

Lighting

Even though light is dangerous to some organic objects and paintings, in storage it is only necessary for finding or locating the objects and carrying out related works but it is not necessary that all the lights should be switched on simultaneously. But at the same time the objects, which suffer from, direct artificial or sunlight should be protected by using only small location or area lights. It would be advisable to have general lighting for the room and specific lights near the shelves or cupboards for clear visibility of the objects. It is better to use night red lamps of low wattage in the night time to avoid insects.

Ventilation

Ventilation is another important factor, which should be attended to carefully. Closed rooms will have very high humidity up to 90%, which will spoil all types of antiquities. Free movement of air avoiding stagnation is good for the health of the objects as well as the staff who work in the storage. Ventilation will create security lapses also. It adds dust to the room. It is essential to plan the ventilation very carefully arresting all the lapses at the same time providing good ventilation to the storage. Depending upon the type of objects it is better to have proper ventilation equipment like exhaust fans, and other modern systems available.

Weather Control System

The environment to the objects in any place is very important in the upkeep of the objects. The environment changes from place to place and the change of the environmental condition affects the objects very badly. Storage as well as the galleries should have similar climatic conditions. If the galleries are air-conditioned, the storage also should be air-conditioned so that the objects do not suffer from different climatic conditions when they are transferred from the storage to the galleries and back to the storage. Since the objects are acclimatised to a particular environment, when they are taken to a new environment they badly get affected. For example, the bronze objects before they are received as treasure-trove finds it is to be considered that the objects were buried for hundreds of years in the ground and equilibrium is set up between the environment and the corrosion products formed on the objects. When accidental digging exposes them, the equilibrium is disturbed and fresh corrosion starts. Therefore it is essential to see that either the storage is air-conditioned or installed with both humidifiers and dehumidifiers so that the relative humidity is maintained at a suitable level depending upon the type of object. Anyhow a stagnant atmosphere creates a very bad environment to the preserved objects. If air-conditioned, it should be round the clock.

Visual Storage

Museums exist to impart education to the public. They have to provide facilities to conduct research on the objects in the museums. Storage must provide facilities for research. But when compared to the normal storage, a new system of storage called *Visual Storage* is much advantageous. Visual storage is getting importance in museums. The advantages are:

1. It has got a better security as the objects are kept in enclosures.
2. It is easy to check their condition etc., and handling the various purposes like photographing, examining etc.
3. It is not necessary that the Curator or a curatorial staff to accompany the scholars as in the case of the normal storage.
4. Interested visitors may be charged for seeing the visual storage. Some museums in the Europe have thrown open the visual storage in the name of *Resource Centre*. E.g. Museum of London has recently started the Resource Centre and the entries are charged.

Wall cases, showcases with table cum drawers are installed along the length of the wall. Labels are also provided to know more about the objects. The table-show cases are provided with a number of drawers with locks. Small objects may be stored in such drawers. Visual storage needs a lot of space as that of the general gallery in a museum. Visual storage is research oriented.

Storage Materials

Selection of the materials for the storage is important as the materials also play an important role in the protection of the museum objects. Today we get all the modern materials for use in the museum storage. Wood, metals, cardboard, block board, plywood, paper, plastics, fabrics, adhesives, paints, lacquers, varnishes etc., are some of the important materials, which are quite often used in the museum storage. Whatever the material and the type of shelves or cabinets decided upon, the shelves should be adjustable so that object of various sizes can be stored and handled easily. Storage units, which are interchangeable in location, are useful in some cases. Many museums use bags and boxes with openings fixed with transparent sheets through which contents may be seen. Some museums pack the objects in boxes of different sizes such that one box will be just double the size of the next small one. When these boxes are arranged in the racks no space is wasted. The accession numbers are marked on the outer side of the boxes to avoid unnecessary opening. It had been followed in the Cambridge University Museum, Cambridge, UK.

Wood

Wood, a naturally available material, is very cheap when compared to the metallic counter part. In tropical climate wood is a medium of good storage. Wood is advantageous for the following reasons:

1. It is soft and will not scratch objects.
2. It is porous and it absorbs moisture or gives out moisture acting as a buffer.

3. It gives aesthetic appearance as it takes any shape very easily.
4. It is easy to work and is at the reach of any museum.

Wood is having some disadvantages also. They are:

1. Insects very easily attack unseasoned wooden furniture etc.
2. Moisture affects very easily and insect growth is seen during the rainy season.
3. They are not sturdy when compared to the metals
4. It is prone to fire risk.

Metals

Even though metal cabinets are good for security reasons, the disadvantage of metal containers for books, paper, bronze and unglazed pottery is condensation of moisture on metal surfaces. Due to condensation, sweating of the metal is noticed during rainy season or in closed room, which needs proper ventilation. Metals have got some advantages to wood in using as storage materials.

1. Metal storage materials will not absorb moisture.
2. Metal will stand against fire.
3. Metal can bear the weight of the objects.
4. Metal racks can easily be assembled and dismantled.

Metals have disadvantages as storage materials.

1. Water gets condensed on the metallic surface during the rainy season, which later affects the objects.
2. Metal abrades the objects. The edges of the metals at times damage the objects when hit against them incidentally.
3. Metal corrodes and the corrosion stain is transferred to the objects at times.

Card-board and Paper

Cardboard and paper are the derivatives of wood and so they are potentially damaging. Acid free paper also has been found to cause corrosion of metallic objects. They should be tested before use.

Plastics

The modern world is using plastic materials in everything. There are varieties of plastics. Each is having its advantages and disadvantages. But advantages are more. Even then it is good to test the plastic materials before use as some of the plastics are deleterious to some museum objects. New polymers have taken a place in the museum storage. British Museum coins section has gone for the plastic cabinets to hold their coin collection.

Fabrics

Fabrics play an important role in giving cushion effect to the stored objects. Felt is corrosive towards silver objects but satisfactory for lead. Plain terylene and nylon are relatively safe,

but any fabric that has been treated to impart non-crease properties is little to give off hydrogen sulphide.

Adhesives, Paints, Lacquers and Varnishes

The choice of adhesive in storage is also very important. Some adhesives give out some harmful gases, which will affect the stored objects. Poly-sulphide adhesives give off hydrogen sulphide, which is harmful to silver objects. Nitro cellulose adhesives and lacquers give off nitrogen oxide but not damaging. The dyes in the paints used can produce harmful defects on the stored objects.

Storage of Different Objects

Objects on the point of view of their material content and the reaction with the environment etc., can be classified into various groups. They are:

1. Metallic objects
2. Organic objects
3. In-organic objects
4. Paintings.

1. Metallic Objects

Metallic objects in a museum means coins, bronze icons, weapons, jewelleries, vessels etc., belonging to the ancient past. Metals are stored in cases on shelves or in a closed cabinet with wooden trays or shelves, usually this should be padded to prevent scratching.

a. Bronze Objects

Bronzes may be arranged in rows on the tiered platforms with the help of pedestals. Dampness should be avoided. The bronze objects should be covered with the help of alkathene covers to avoid dust and moisture. Miniature bronzes should be kept in wooden trays and the trays themselves should be kept in the racks. Archaeological bronze objects should be checked periodically for bronze disease, which is common in bronzes, when the high humidity is present.

b. Coins

For housing coin collection of any size the traditional method, the coin cabinet, is still the best. This is usually made of wood and equipped with a series of shallow drawers or trays, each one of which contains a large number of separate circular piercing vary according to the size of the coins where it is necessary to keep items of widely differing diameters together. The requirements of security can be met by ensuring that every piercing or in a coin tray is filled – if not by an actual coin – then either by a heading ticket of coloured card which will indicate the appropriate series and sub-division of the series or by a coloured black security which will leave space for new coins to be incorporated in the tray. For essential information about the coins, such as their registration numbers and description, small round shaped white cardboard ticket can be kept under the coins. Plastic and steel can be used for making cabinets.

The simple method of storage is to keep the coins in special envelopes made of good quality white paper, and to file them in stiff cardboard or wooden boxes in case few hundreds of coins are available. The details about the coin or medal can be written outside the envelope. It is a cheap method of storage of coins. But the subsequent examination of coins is laborious. It is difficult to keep a secure check on coins stored in this way. This is the method followed in the Government Museum, Chennai.

Recently the Chemical Conservation and Research Laboratory of the Government Museum, Chennai has devised an arrangement for the display of rare lead coins. Depending upon the size of the coins, circular holes are made in a perspex sheet. Two same sized plain perspex sheets are placed both sides of the pierced sheet after keeping the coins in the holes and secured properly. The labels are pasted in the appropriate place and the coins can be examined in a moment. Any how the set up should be handled very carefully as the heavy weight may make the sheets to break.

c. Jewelleries

Jewelleries should be stored in shallow wooden drawers lined with tarnish resistant cotton cloth and tissue paper in tightly closed cabinets. Decorative jewelleries are mounted on silk or velvet lined trays, which fit in drawers in cabinets. The trays may be kept one above the other in steel almyrahs kept in the strong room.

d. Armouries

Armouries consist of swords, spears, knives, guns, cannons etc. Depending upon the size, weight etc., they should be stored properly. Separate wooden stands may be made to store swords, spears with locking systems so that they will not fall. Heavy weapons may be kept on strong pedestals so that the floor will not be affected. They may be properly protected or oiled so that corrosion may be avoided.

2. Organic Objects

Organic objects include the derivatives of biological materials like textiles, leather objects, palm-leaf manuscripts, books, paper materials and other tribal materials and dresses. Since they are prone to easy deterioration the storage should be maintained in a proper way to safeguard them.

a. Textiles

In order to have easy storage, the textiles can be classified into two groups. They are:

- i. Flat type of textiles like carpets, saris, dhotis, shawls etc.
- ii. Shaped textiles like garments, caps etc.

Acid-free paper should be used over tubes and inside the boxes. Use of self-adhesive papers should be avoided, as they will spoil the textiles. Placed in separate folders made from acid-free board or individual trays, or in shallow boxes, provided that the containers are not over

packed, there by causing pressure on the lower layers, impeding ventilation and encouraging excessive handling. Large flat textiles and long narrow strips, which are too large to be stored flat, should be rolled, right side outer most and interleaved with acid-free tissue, onto hollow cylinders of relatively broad diameter. All rolled textiles should be secured with broad tapes fastened over soft pads, or held with *Velcro*, nylon contact fastener, they should never be found with cords. Tapestries are hung or rolled or if small stored flat. Rolled tapestries may be stored on shelves and covered. Small pieces should be stored flat in boxes. Storing costumes on padded hangers in transparent plastic bags is usually preferable to storing them in drawers or boxes. Accessories such as shoes, hats and gloves may be kept in cabinets. Heavy garments are stored flat or loosely folded and kept in cabinets.

b. Dry Organic Materials

i. Wooden Objects

Wooden objects are the derivatives of the living organisms and they need special storage. It is better to store them in wooden racks. In some museums wooden sculptures are suspended on weldmesh frames both the sides, which avoid space shortage, and make easy, the inspection avoiding abrasion. Dry organic objects should be packed individually using acid-free paper as padding. Baskets are stored in cartons or loose on shelves or in cabinets.

Bark materials including birch bark, elm bark as well as the so-called tapa cloth of the pacific islands are stored on open shelves covered. Clothes should be rolled but not folded. Perishable ethnological objects are stored in trays or drawers in moth-proof cabinets. Objects with an easily damaged surface should be kept in a dust-proof cabinet, or if impossible they should be wrapped in soft paper. Masks are stored in cases on shelves, on wire racks or hung on a heavy wire mesh screen by means of hooks inserted in screw eyes in the backs.

Musical instruments can be stored in wooden shelves. Wooden small objects may be stored in partitioned wooden boxes or narrow drawers. Lacquered and varnished instruments should be wrapped for protection.

Ivory objects are protected from dirt with cloth covers and stand on open shelves or on padded shelves or trays in a cabinet.

ii. Botanical Collections

Wood samples, dry seeds and fruits, gums and resins are stored in glass containers of various sizes, in boxes or in trays in drawers. Preserved specimens are kept in glass bottles. Herbarium specimens are stored flat in standard genus covers. Labeling is accompanied either by adding a label to the herbarium sheet or to the packet or box in which the specimen is housed.

iii. Zoological Collections

Mammal specimens like mounted heads are stored in vertical racks, skins in trays or drawers, and spirit collections in accordance with normal wet storage procedures.

Embalmed materials are stored in concrete vats, Monel metal tanks or in glass jars depending on the size of the specimens and are protected from light. Skeletons depending on their size are stored loose or in cardboard boxes in wooden drawers.

Alcohol preserved specimens are preserved in jars, drums, tanks or crocks depending on the size. Skeletal materials are stored in wooden or cardboard boxes in cabinets. All specimens are protected from light.

Insects like dry pinned specimens are stored in cork lined trays in glass topped drawers in insect-proof cabinets. Alcohol preserved specimens are stored in glass screw-cap jars.

Lower invertebrates like dried crustaceans are stored in individual trays in drawers in steel cabinets. Alcohol preserved crustaceans are preserved in individual vials or jars on shelves in steel cabinets.

Mounted specimens like birds are stored on shelves in cabinets. Study skins are prepared and kept for storage and study in the reference collection. These are kept in drawers of different depths and sizes according to the bulk and dimension of the study skins. Nests and skins are stored in wooden trays or drawers in dust-proof cabinets, which are fumigated periodically. Skeletons are stored in boxes. Eggs are stored in cotton-lined boxes in dust proof cabinets, which are fumigated periodically.

3. In-organic Objects

a. Stone

Stonework showing no signs of deterioration can be housed in the standard form. They should be covered with light cloth rather than polythene or placed in boxes to avoid dust. Heavy sculptures may be arranged in tiered cement platforms in rows on wooden pedestals. Small sculptures may be arranged in tiered cement platforms in rows on wooden pedestals. Small sculptures on wooden pedestals may be arranged in rows in steel racks. Each rack may be numbered and the list fixed to each rack.

b. Terracotta Objects

Terracotta objects should be wrapped in tissue paper and also surgical cotton. They may be arranged in trays provided with partitions and kept in the racks or almyrahs. The numbers to trays, racks should be given a list.

Ceramic objects are stored in shelves or in drawers in cabinets or on open shelves. In some museums they are stored flat in old showcases. For some pieces, shelves covered with plastic material may be desirable.

Enamels are stored on wooden shelves in closed cabinets. Small pieces are stored in padded drawers.

Glass objects are stored on wooden or metal shelves, preferably felt covered so as to be shockproof and narrow enough for all pieces to be seen. The shelves may have sliding doors

with screens or glass windows. Glass objects should not touch each other and should be protected from dust and moisture. Closed cabinets, old showcases and open shelves are also used for storage.

c. Geological Specimens

Fossils are stored on shelves or open racks. Small fossils are stored in padded steel storage trays or in cardboard or wooden trays in drawers in dust proof cabinets.

Alcohol preserved specimens are stored in hermetically sealed jars in cabinets. Shells, rocks and minerals are stored in trays or drawers in dust proof cabinets and if they are large then they are stored on open shelves. Deliquescent minerals are stored in wooden drawers in dust proof cabinets keeping silica gel in the drawers. Light sensitive materials are boxed in black containers and stored in cabinets. Beads should be strung together in a thread and stored in wooden boxes. In between each bead a cardboard washer may be kept to avoid abrasions.

4. Paintings

Paintings are stored in wooden and metal bins with separated sheets of corrugated cardboard between them and on fixed or sliding screens. Sliding screen method is preferred. Screens of heavy diagonal mesh are supported by over head tracks. Paintings are hung on both sides of the screens with S – hooks of a size to fit the regular installation screw eyes on the frames. Protective coverings of varnished plywood, cardboard should be attached to the backs of stretchers. In case, if plywood is used as backing, it is better to varnish the backing to avoid the absorption of moisture. Stacking should be avoided if possible. Water and insect proof soft boards are now available. When stacked it is better that the stacked paintings should be interspersed by corrugated cardboard and rested on skid free pads. Miniature paintings should be stored in shallow drawers in closed cabinets.

Paper drawings, illuminations, water colours, prints, photographs etc., should be stored on wooden shelves covered. There should not be indirect contact with wood. Unframed works should be covered with Japanese tissue paper and placed in hinged mounts with window fronts. They may be kept in solander boxes. These boxes may be kept inside the pull out shelves. Scroll paintings are wrapped in cloth and stored in individual boxes or tagged with accession numbers and kept in drawers, drawing as prints may be protected fully well by encapsulation in melinex sheeting. As long as the relative humidity is correct at the time of encapsulation, this method provides a permanent microclimate to the object.

Bibliography

1. Chaya Bhattacharya, Visual Storage: A New Approach, Museology New Horizons, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
2. David Bomford, Conservation and Storage: Easel Paintings, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
3. Dorothy H. Dudley, Irma Bezels Wikinson and others, Museum Registration Methods, Washington, 1968.
4. Elizabeth Pye, Conservation and Storage: Archaeological Materials, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
5. Jean M. Glover, Conservation and Storage of Textiles, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
6. Keith B. Priestman, Conservation and Storage: Ethnographical Materials, Ed. John M. A. Thompson, Butterworths, 19885.
7. Michael Brawne, The New Museum Architecture and Display,
8. Nigam M. L., Fundamentals of Museology, Deva Publications, Hyderabad, 1985.
9. Nilima Roy, Need for Ethnographical Collections in the Indian Museums and Their Storage Problems, Museology New Horizons, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
10. Sharma B. N., Storage Problems of Archaeological Collections, Museology New Horizons, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
11. Sharotri, G. K., Storage of Arms and Armour with Special Reference to the National Museum, Museology New Horizons, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan, Delhi, 1980.
12. Smita J. Baxi, Museum Storage, Modern Museum, Ed. Smita J. Baxi and Dwivedi, V. p., Abhinav Publications, New Delhi, 1973.

CHAPTER VIII

MUSEUM ADMINISTRATION

Museum administration in India is varied as the types are also varied. The major Indian museums are either managed by the Central Government or State Government or indirectly through Board of Directors of Trustees. Government museums, which are run as subordinate offices, follow the government rules in their day to day matters. Museums run by the universities, local governments follow their own rules and regulations in their day to day administration. The museum management can be divided into three. They are:

1. Premises Management
2. Personnel Management
3. Financial management

1. Premises Management

In the museum administration it is one of the important factors to manage the premises. House keeping in museums will keep the antiquities in a safe condition. The cleanliness in the museum campus adds the aesthetic beauty of the museum making the visits to the museum enjoyable. In many Indian museums this work is carried out by the staff of the museum. In some museums this work is outsourced. The cleanliness work is supervised by the museum staff. Even the toilets maintenance also being executed by outsourcing. The maintenance of the buildings are maintained by the Public Works Department as the buildings of government museums are owned by the Public Works Department. The occupying department, i.e. the museum has to ask for the type of major repairs, if necessary.

Maintenance Routines

Maintaining the premises and buildings in a museum is task by itself in some museums Public Works Department does the maintenance work. The Curators report to the head of the museum about the repairs to be undertaken and the head of the museum in turn prioritise the work and entrust the work to the Public Works Department. The facilities of the government museums are maintained by the Public Works Department Electrical Division. Maintenance should be tackled as a routine activity. This routine activity is based on the knowledge of the building, its contents and on its specific structural and environmental problems. We can divide the nature of maintenance work into three categories.

1. Daily Routines

- i. Aeration of the building
- ii. Cleaning
- iii. Reporting any damage
- iv. Security check

- v. Attending to minor damage
- vi. Check for leakage
- vii. Check for plant growth
- viii. Removal of wastes

2. Monthly Routines

- i. Inspecting the terrace
- ii. Repair work of the flaking plaster
- iii. Inspection by the site committee

3. Annual routines

- i. Interior lime wash or distemper coat
- ii. Painting of doors and windows
- iii. Annual report prepared for the maintenance of the buildings.

Annual integrated pest control has to be done either by the museum or with the help of the public works department. There are both government and private agencies available to carry out the pest control. In the Government Museum, Chennai the pest control is annually carried out by the Tamilnadu Warehousing Corporation, Chennai.

2. Personnel Management

The principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for each employee (Taylor, 1947, p-31). Even though, his ideas have left a legacy of principles and beliefs, some of which are still implemented to day. In the developing stage of the museums through out the world the management of the personnel is one of the important factors which is given much importance with out which the administration of the museum will go into chaos. It is very important that the staff structure should be well planned. It is through the staff structure that the relationship between individuals in the organisation is set out, and their responsibilities defined. Its objective is to influence and create an environment in which the authority can recruit and develop the employees it needs to achieve its objectives. There are different types of museums and the administrative set up differs from museum to museum. Whatever may be the type of museum the services required is the same. There are Director / Curator to head the museum. Besides that there are academic services like the various collection and administration to look after the functioning of the office. Every body is working for achieving the same goals.

Appointments

In the selection of staff to the Curatorial section of a museum, there is little difference from that of other offices. In the beginning a degree in the relevant subject was the qualification prescribed for the entry into a museum service. Nowadays it is felt essential that a post graduate degree in the subject with relevant knowledge in museology is preferred. The staff who enters into the Curatorial section gets promoted and finally becomes the Curator and there are chances to be promoted to the higher positions also.

Training the Staff

Training is the process of changing a given behaviour up to a desired behaviour. Training is important because of the following reasons:

- Trained manpower is not easily available in the market.
- Training condenses the experiences that others have gained over several years.
- Training removes the anxiety of workers as to whether they can do the job successfully.
- Training helps the institution to have a well-coordinated team.
- Training helps to equip a person to do the job in the shortest possible time.

A balanced training programme develops in a person knowledge, skills and attitude.

Effective training programmes for those who work in museums are fundamental in ensuring that our museums are equipped to face the challenges of them. Since every one has a role in the success or failure of a museum, training is essential. Training should not apply just to junior staff. Junior staff must be given long detailed training so that they will pick up the subject very well from the beginning. A short-term training should be given to the experienced staff members at regular intervals so that the modern trends will be taken care off. Many directors and senior staff urgently need to acquire improving management and financial staff and it should be just a one-off, but should combine any necessary through out an individual's active career.

Effective managers will take advantage to ensure people subordinate to them are provided with the training that is necessary not only to carryout their immediate function but also to be a more cohesive part of the museum profession as a whole. The Museums and Galleries Commission, London recommends 2 % salary per year for providing training to the staff.

One of the aspects of personnel management in a museum is training to staff, as it is very essential to the performance of an institution. Just on the staff structure and its management arrangement should be designed to meet the needs of the institution's overall object, so the training programme should be defined to meet the needs of the individual posts with in the structure. Training to the staff always improves the working standard of the individual. The more and interested staff is given the training the more is the output. Museum camps should be conducted for shorter duration on specific subjects in which experts in the field should be involved. Such camps had been useful in the past. Now there are administrative colleges which train museum personnel to excel in the day to day administration of the technical staff. Museum facets can be included in the training pattern.

In-service Training

Museums impart training to the staff to increase the effectiveness of staff at work, there by enhancing the service to the museum, the collections, users and visitors, and other staff and contributing to their self-development. Museums have their own strategies. Museum provides induction courses to the new incumbents in which all aspects of the museum management is

introduced. If the staff is in need of training to further their knowledge, they may be given opportunities to do so. Refresher courses may also be conducted regularly. Government Museum, Chennai is conducting in-service training in *Care of Museum Objects* and *Preservation of Biological Specimens* annually for those working in the relevant fields besides regular induction courses. Induction courses are conducted to the Gallery staff how to behave with the public, fire fighting, first aid, fundamentals of public law etc. All the Curatorial, scientific and administrative staff is to be given training in information technology so that they can use the computers for their day to day work in their sphere of work. Meeting with their counterparts in other museum may be arranged so that each one is exposed to the current trends in the field. Staff members may be sent to other countries to participate in symposia, conferences, workshops or to accompany artifacts which are sent for exhibition or giving training to people who are involved in similar work elsewhere in the world on invitation.

Some of the legal issues are best dealt with on an adhoc basis by reference to the museum's legal advisers, others should be covered by short training courses given by appropriate specialist bodies; others may be covered quite adequately by making available appropriate publications. It is essential for the staff to receive proper training in the provisions and implications of the appropriate legislation, and such training is now often available through local authority personnel departments. For the developments of the staff some of the specialist courses will be of much use. Induction course for security staff will help every new member to know the geography of the building, patrol patterns, emergency fire, theft and bomb procedures, fire fighting and legal issues relevant to his work. In many cases, training may also be needed in the handling of exhibits, packing and the use of display equipment. A written manual should be provided for all the security staff, covering all basic aspect of their work. Specific training on fire fighting and legal issues relevant to his work should be given. In many cases, training may also be needed in the handling of exhibits, packing and the use of display equipment. A written manual should be provided for all the security staff, covering all basic aspect of their work. Specific training on fire fighting and first aid is usually organised by local authority personnel departments. Volunteers and temporary staff should not exceed the number of the permanent staff and they should be trained in their work. Training like every thing else should be designed to meet a genuine need.

Industrial Relations

Poor communication creates problems in the day to day work. The problems should be watched and solved before they go out of hand. There should be good communication between the management and the employees. Most large museums now have a system of joint consultative committee where management meets the union representatives on a regular basis. Personality clashes arose can be reduced by informal seminar type arrangements between the staff. The challenge before the management is to adapt the conditions and means to make the best possible use of the considerable abilities of the staff in the museum.

Director

The personality of the Director or Curator as the case may be in a museum is the deciding factor for the success of a smooth running of a museum. He is responsible for the upkeep of the collections of the museum. He must win the confidence of the Governing Board/Government on one hand and the loyalty of his staff on the other. Thus fulfilling all the aims and objectives and rendering a useful service, the Director/Curator of a museum commands devoted support of his employer and the unbound regard of the community. But this is a difficult task to achieve. It will, no doubt, require a thorough knowledge of the bye laws and previous records of the museum, scholarship at least in one or two fields of the museum collections, acquaintance with the methods and techniques of museum work, accuracy of judgment, balanced opinion, polite behaviour, infinite tact and a sincere and attractive personality.

He has his routine work in the museum such as correspondence, dictating replies, marking *tapals* to Keepers or Curators as the case may be. Guiding on the day to day works and also on special works, supervising works, appointments to VIPs and the staff members, conducting review meetings with the subordinate officers etc.

He has got meetings with the Secretary to the Government and sometimes even with the concerned minister on plan review meetings, discussions on developmental activities, committee works, preparing the agenda for the meeting, discussing with the chairman on certain issues, sending the copies to the members of the committee etc.

Besides these he has control over the financial issues, checking the various accounts, directing his own staff on the concerned works. If time permits he is doing research work and participates in seminars and presents lectures in his specialised field and guides research students in his specialisation. The government museums, which are run as subordinate offices follow government rules in their day to day matters. The head of the museum is delegated the financial and administrative powers under the rules so that he can attend to the day to day administration on the basis of this delegated power. However, he has to refer to cases of policies and financial sanctions, beyond the powers delegated, to the ministry concerned. In the case of autonomous organisation, which have been declared as institution of national importance by an Act of the Parliament, there is a board which administers the museum with the Governor of the State as its Chairman. It has the infra structure of an Executive Committee and a Finance Committee. The concerned government secretariat department is represented on these committees as well as on the board. As far as the State museums are concerned, they are generally attached to their department and they approve the administrative and financial matters. The university museums are under the respective department's control and due attention is not given for their development.

Curator

Curator is a very important word in the museum field. The root of this word is from Latin, which means guardian of a person, a boy or a girl, or caretaker of a property. Its earliest use goes back to 1661 AD. In the United States the museum head is called Curator and in France

Conservator. In Australia, they are called Managers. In India in 1879, Lord Lytton, the then Governor General of India formulated the scheme for appointment for a Curator and Major H. Cole was the first person to be appointed to the post in 1880. Curator or Keeper is the head of department or section in a museum. In a small museum Curator is the head of the museum. They are, in principle, scholars or scientists specially trained and experienced in caring for the collection under their charge. They are assisted by Deputy Curator, Assistant Curator, Curatorial Assistant, Technical Assistant etc., depending upon the size of the collection. The Indian Section in the Victoria and Albert Museum (V & A), London has a staff of seven members where as the Archaeology Section in the Government Museum, Chennai, which is larger than the Indian Section of the V&A Museum, has only three staff members. Whatever may be the designation, by which the museum head is called, the Curator is the most crucial person in the museological institution. The success or failure of the institution depends upon his academic background, dedication to his duties, a high sense of responsibility, tact and capacity for man management and of course his museological knowledge. Dr. C. Sivaramamurti the then Director of the National Museum, New Delhi opined as follows: Curator is a living force in a museum but nowhere else is a Curator more neglected than in India though prodigious knowledge and enormous achievements are expected of him. Recently, the post of Keeper in the National Museum, New Delhi has been re-designated as Curator.

Duties of Curator

In museums the professional Curator has a management and administrative role to play, which is an essential, though different, job from that for which he / she is primarily employed. The emphasis on management and administration often increases in direct proportion to the level of seniority of an individual (Michael A. Fopp, 1996, p-28). There are common duties of the Curators in a museum where he is the head. Besides general administration he has to do the following work:

1. Registering, numbering, cataloguing, and card indexing of the specimens acquired for the museum.
2. Photographing work.
3. Preservation and labeling of the collections.
4. Maintenance of the galleries.
5. Maintenance of sectional library.
6. Work related to educational activities.
7. Research and publications.
8. Maintenance of registers and diaries.
9. Technical correspondence.
10. Presentation of research papers in seminars etc.

Code of Conduct for Museum Curators

It is Curator's duty to take all possible steps to ensure that the governing body of the museum adopts a written acquisition policy. There after it is his duty to recommend revisions of the policy at regular intervals. He must ensure that the policy, as formally adopted and revised by the governing body, is implemented, and ensure that this colleagues are fully acquainted with it.

It is Curator's primary responsibility to do all in his power fully to protect all items in his care against physical deterioration whether on display, in store, subject to research or conservation procedures or on loan elsewhere.

Safeguards against fire, theft and other hazards must be established in consultation with appropriate specialties and be frequently reviewed. A Curator must appraise the governing body/government of the recommendations made to him and enforce all safeguards subsequently adopted.

Staff for Museum Education

Museum education and public relation staff generally may be considered the interpreters of the museum, for its collections, its exhibitions and its activities of every kind. They are in direct contact with the museum visitors and the public in general in the course of their regular duties. In the case of educational staff they deal with the citizens at all levels, including teachers, pupils in schools, students of colleges and universities as well as the casual visitors. The educational specialists arrange lectures, write informative and instructive brochures on the museum, its collections, activities and services on a sound, but popular level. They are also responsible for the training programme of the museum. The Public Relation Officer has to prepare releases, background information for journalists and representatives of television and radio, and publicity, such as advertising. Sometimes the Public Relations Officer has to be in charge of the information desk and the general publication programmes of the museum. In museums where there is no Public Relations Officer the Education Officer is taking charge of this.

Guide Lecturer

The guide lecturer is a part of the education department of the museum. His primary work is to guide lecturing the visitors. He has to assist in all publicity matters. Organising children's programme in the museum, children's programme in the museum, film shows in the museum in co-ordination with the education Curator or public relation officer.

Security Staff

The Security Officer is responsible for the safety of the museum's collections against theft, vandalism and fire. A large museum normally has a Security officer, who is normally a retired officer of the Armed forces or Police. In a small museum one of the Curators, the Assistant Director or the Deputy Director has this as an additional responsibility. In a district

museum the duty is looked after by the Curator himself. The Security Officer is responsible for the discipline of the security staff, watch and ward, gallery attendants, guards, etc., neatness of uniforms and smartness of the personal appearance of such staff. There may be under him Supervisors, Duffedars, etc., to assist him. They are called front of the office staff. In the Government Museum, Chennai the Police help in the external security of the museum along with the Ex-service men and own staff. In the National Museum, New Delhi the internal and the external security is maintained by the Central Industrial Security Force. Armed Guards are posted in the entry points in some of the museums.

Technical Staff

Technical personnel are yet another important faculty in a museum. They are specialists in the various skills required by the museum, the scientific conservation personnel, the library staff, photographers, modelers, artists, designers, cabinet-makers, taxidermists, printers, draftsmen, craftsmen, videographers, projectionists, electricians, packers, engineers, etc. These staff help the museum Curators to present the collections for public pleasure and education.

Service Staff

A museum must have the service staff of various categories and responsibilities. They are the gallery guards, gallery attendants, sweepers, cleaners, and staff in the sales counter, information desks, art handlers, gardeners, etc.

Ministerial Staff

In the day to day administration the ministerial staff help the Director or the Curator in the administration of the museum. There are various categories of staff such as Administrative Officer, Accounts Officer, Office Superintendents, Managers, Assistants, Accountants, Junior Assistants, Cashier, Caretaker, Record Clerks, Office Assistants, to assist in the administration of the museum. Both in the European countries and Australia, each section head is having a secretary to assist in the administrative work pertaining to the section.

Volunteers

Voluntary service is a service available to the museum authorities free of charges and they are mostly committed to the service. Some people call volunteering as exploitation. But it is a fact that employers choosing between a large number of job applications tend to prefer those who have shown commitment and gained experience by working voluntarily in a museum or related institution. A volunteer in a well-run museum will learn a great deal both about openings and opportunities generally. The volunteers can be used in Curatorial work, visitor services, conservation etc. The Government Museum, Chennai is utilising volunteers in the Chemical Conservation and Research Laboratory. In the Victoria and Albert Museum, London is utilising the services of volunteers in a systematic way. The Friends of the Museum are also much involved in activities like collection of entrance gifts, guiding the visitors, etc. I was told that the volunteers are paid to and fro charges from the museum. They work for a few hours, which are convenient to them.

Financial Management

In American Museums the additional support is generated by such things as admission fees, sales from museum shops, licensing programmes, and revenues from special facilities such as parking lots and restaurant. In all the operating revenues have contributed 29% of the total income to museums. These museums spent their money primarily on various aspects as follows:

1. Administration : 28%
2. Operations and support : 27%
3. Curatorial, display and exhibitions : 20%
4. Education : 15%
5. Research : 10%

Museum staff members should realise that in order to attract a wide general public, they must use strong, simple, or even colourful messages. They should realise that they must become expert at public relations. The success of many campaigns for museums depends invariably assisted by attractive and well-written campaign materials, such as Case Settlements and articles in newspapers, which coincide with the launching of a campaign. In the Indian context, the national and the State government museums are managed by the grant from the government. Funds are allotted both in the non-plan and plan heads. The museums have to depend mainly on the plan budget for their development and to some extent for the maintenance of those schemes. The variety of funding a museum or art gallery in the first instance be linked to the generally accepted technique of dividing ones operation into revenue expenditure, and capital funding. In India the trend is changing. The Government of India is trying to advice the museum to get 20% of the total expenditure by its own sources. The trend is already being followed in the European countries. Now, in the Indian context, zero budgeting is being advocated by the governments.

Capital Funding

The word capital is generally means accumulated wealth in producing more. Capital funds are therefore used to pay for erection of building or some other singular operation such as fitting out a store of constructing an exhibition. A museum's capital funds may be received in the form of a specific grant or may be borrowed and repaid over a period of time which is related to the purpose for which they have been borrowed. In the case of government funding the expenditure towards all immovable construction or erection is called capital funding.

Revenue Funding

Revenue funding is the fund realised by the government for the day to day running of the museum. The government provides the annual revenue grant for salary, travel and on some specific projects. Proposal are sent to the government both under plan and part II schemes.

Administration

The administrators are controlling day-to-day expenditure. Alternatively, the Curator may have considerable freedom to spend money within an agreed budget. In this case the administrator will have a crucial role in advising the spending officers of the budgetary position and to be able to do so, all financial information, must ultimately pass through his hands.

Governing Board

The Government of India through a board of trustees, as its representative, to run the museum administers the national museums. The governing body assumes a grave responsibility of framing the policies of the museum, which it holds in trust for the community and to ensure a smooth and effective working. The governing board should ideally represent as much community interests as possible. The board may be divided into many sub-committees on specific aspects of the museum administration.

Museum Advisory Committee

Some museums have an Advisory Committee in addition to their main Governing Body. Even some State Government museums have an advisory committee to advise the museum authorities on running the museum in an effective way. The Salar Jung Museum, Hyderabad has a Development Committee appointed by the Board.

Objects Purchase Committee

Some museums have an Objects Purchase Committee or Art Purchase Committee. In some museums this committee is otherwise called the Art Purchase Committee. This committee will have experts from various facets of museum. This committee minimises the responsibility of the Director or the Curator, who may not be well versed with various disciplines represented in the collection but also enables a museum to gain the benefit of experience and expert knowledge of scholars in various fields of learning.

Financial Sources

As stated earlier the financial sources are from the government for a government museum. Besides this now-a-days museums are trying to get finance from various sources to fulfil the developmental activities of the museums. Sources like ICOM, UNESCO, Ford Foundation, Getty Institutes, aid from foreign governments etc., are also available to museums. All these are rooted through the respective governments.

Government Grant-in-aid

In the American museums about 20% grant is received from the government. The government grant-in-aid is sufficient for the salary of the staff, maintenance of the building and other maintenance charges. In the UK museums, the government is steering the museums to give the strategic plans, corporate plans, etc., with the performance indicators and the review of

the previous year's work to the government. The government offers maximum service to the public, the taxpayer, through the museums. Small museums get some funds through the Museums and Galleries Commission. In India, the Department of Culture through a committee sanctions grants to small private museums to augment its activities in order to encourage them. From 1997 onwards the Culture Department sanction grant-in-aid to government museums also to help them to go ahead with some of the activities for which the government has not given any grants. The Government of Tamilnadu has granted a special grant from the entry ticket collection a sum of rupees ten lakhs for carrying out improvement to the galleries etc., annually.

Museum Endowment Funds

Many museums in America thrive mainly on the endowment funds. The Metropolitan Museum, for instance, relied on endowment income for 70% of its revenue as recently as 25 years ago. Today, endowment income has shrunk to just 15% of its income.

Many museums have now started many endowments sponsored by either individuals or organisations as one time financing. The interest accrued from the deposit comes to the museum and programmes are conducted out of the money regularly. The Government Museum, Chennai at present has three endowments. Steps are taken to increase the number of Endowment Funds. This will help in conducting regular programmes of the museum without any expenditure from the museum funds.

National Cultural Fund

The National Cultural Fund was created as an institution in November 1996 to facilitate the funding of arts and culture in India. It will enable institutions and the public at large to make fully tax deductible contributions and donations to the national Cultural Fund for donor specified projects, or for general purposes. In this way the contributors would participate in, and the responsibility for, artistic and cultural aspirations in the country. It is worth pointing out that the State is not abdicating its role in supporting arts and culture, but increasing participation by others in the same.

The National Cultural Fund is managed by a Council of between 17 to 24 members, of which not less than 12, and not more than 19, are drawn from the arts and cultural sector. The purpose of the structure is to increase non-government representation in the decision making process. An Executive Committee of 10 members is drawn from the council membership, which will work directly with the professional staff and management of the National Cultural Fund.

Overseas Development Fund

In India the Overseas development Fund is available. The Government of India processes the fund. This fund is sought in the case of very big projects to the tune of few crores of rupees. The Government Museum, Chennai has sent a project proposal to the Government of India

through the Government of Tamil Nadu for the establishment of a Buddhist Centre in the Government Museum, Chennai in 2004.

Self-raising of Funds

The fund allocation to museums is decreasing day by day. There is a need for self-sustainability. Museums are floating their own programmes to get regular flow of funds. Many museums have their own Museum/Gallery Shops to sell the souvenirs and books to bring a source of income. Museum/Gallery Café is another source of income to most of the museums. Some of the portions are rented out and this becomes yet another source of income to museums. Entry fee is another source. In some museums training programmes are conducted after levying a fee. Programmes are sponsored by corporate agencies. Many programmes are conducted in collaboration with non-government organisations, which spend money on programmes. Many museums offer consultancy services in conservation, display, identification of objects etc., on charge basis. Government Museum, Chennai, INTACH, IASC, New Delhi etc., are collecting fees towards this service.

E-GOVERNANCE

Law and the principles of a welfare State guide a government's role in governance. If a government is keen to deliver good governance, then its processes need to focus on main goals such as quality, transparency, time management and economy. What ever may be the type of office, good governance will help to identify the defects and the rectification can be done for better governance. Any Government policies, projects and activities will be successful when there is full involvement and participation of the citizens. This has been proved in many projects in all parts of the world. Governments should be effective, responsive and transparent as far as the public and the employees are concerned.

Information technology is highly useful in order to make the organisations as mentioned above. As more and more electronic media are being utilised for governance, the work becomes easier. But one should make himself aware of the modern facilities. In other words, we may say that electronic governance has taken the root in administration. E-governance as a practice emanated from a project, Service Arizona in 1996, when the Department of Motor Vehicles in Downtown Phoenix Arizona (USA) pioneered the work of registering of vehicles on the web, which was built, hosted and maintained by the IBM. E-governance is an offshoot of e-commerce. E-governance is nothing but the application of more and more electronic in governmental affairs, whereby information and data pertaining to the day-to-day administration is stored, collected, retrieved and disseminated to the citizens, as and when they need and demand. In other words we may say that e-governance is nothing but the application of Information Technology to the process of government functioning to bring about simple, accountable, responsive and transparent governance. Blake Harris summarizes the e-governance as follow : E-governance is not just about government web site and e-mail. It is not just about service delivery over the Internet. It is not just about digital access to government information or electronic payments. *It will change how citizens relate to governments as much as it changes how citizens relate to each other.* It will bring forth new concepts of citizenship, both in terms of needs and responsibilities. E-governance will allow citizens to communicate with government, participate in the governments' policy-making and citizens to communicate each other. The e-governance will truly allow citizens to participate in the government decision-making process, reflect their true needs and welfare by utilising e-government as a tool. This is also relevant to museum administration.

Changes and the Problems

Science and technology have caused a lot of developments in the administration. Information technology is one of the advancements of science and technology. The trend of education is changing; the functioning of organizations is also changing. Similarly the cultural conflicts are also seen in offices. Organisations are changing the administrative set up and the functioning also varies accordingly. About 20 years back, there were some systems like giving efficiency bata to those who fared well in the day-to-day work in the offices. A trend came in which the efficiency bata was removed and every body was treated alike. This has affected the working

culture. Some time back the employees were taking interest in developing the department to which they were attached. Now the culture of the employees has thoroughly changed that work to rule is the order of the day. Give work to the sincere workers and wage to every one. Many of the staff members are not interested to take up responsibility and so the standard of working culture has gone down. The work in a cultural institution is not alike the work in other offices. Culture is not given importance and hence not much pressure is found in the departments and therefore this is the involvement of the staff to attract public through various means to market the stuff of the museum through innovative ways. E-governance helps in the good transparent functioning of the cultural organisations. This is being practiced in the Department of Museums, Government of Tamil Nadu.

Scope of E-governance

There are many specifications of Internet's applications. They are

1. Bulletin Board
2. Promotion
3. Service Delivery and
4. Public Input

The public can express their opinions on various policy issues. This information is used as feedback to redesign and reorient department's programmes for better services.

Internet

Internet is a network of networked computers. It is one of the important media of communication these days. Internet is being used by all most all in the day-to-day life. Some of the Internet service providers (ISP) have made the use the Internet services almost free. This makes one to get all information at hand every day.

E-mail

Email is a mail delivery system over the Internet. The receiver having a unique address at the other end will receive the mail sent by the sender who has a unique address. Department of Museums have got a system that the matter for newsletter through e-mail. It was very easy to compile the Newsletter besides getting the information on time.

Touch Screen

Touch Screen is a human interaction tool. By just touching the monitor we can access the menu items found on the screen. This is being done in the Government Museum, Chennai in the Rock and Cave Art Gallery. All the information is being retrieved by the visitors without the help of the staff of the gallery.

Voice Mail

Voice mail is a mail delivery system like E-mail. Voice mail transmits voice instead of text or image data.

Discussion Forum

It is *Group Discussion* system over the Internet. Here in a forum a group of people shares their views on a particular topic.

Video-conferencing

It is the way in which people can talk face to face with the people at the other end, which is connected, with the web camera. The author has participated in one of the Video-conferencing and it was enjoyable that Video-conferencing could be done with persons at Mumbai, Kolkata and New Delhi from Chennai.

Chat

It is the way for two or more people to talk with each other and share their views. With the help of the chat software the user at one end connects to another machine in the other end. The users can chat with each other through the computers. Discussions may be done on any matter without much cost even with long distance.

E-newsletters

E-newsletters are the online magazine/periodical. The e-magazine is sent periodically to its subscribers. This is sure of getting the newsletter by the receiving end at the same time the cost is very less.

E-Mailers

E-Mailers are considered to be the main promotional medium in the Internet industry. E-Mailers are sent to the target audience to which they are focused.

Internet Advertising through Banners

Internet advertising plays an important role in the advertising industry. Banner is the best tool in Internet advertising. Banners have standard sizes and they are placed in the sites, which is frequently visited by their target audience. Exhibitions can be displayed so that many will be attracted to visit the exhibitions in the museum.

Landing Pages / Microsite

Landing pages / Micro sites are the scaled down version of a website. This landing page / micro site is placed in the website where we get more target audience

Online Booking

No more waiting, no more queues. Most of the services like booking railway tickets, flight tickets, cinema tickets, taxis etc., gone online to facilitate the users. The users can go directly the specified website and make their booking without hassles. Museum visit by group of visitors, school visit etc., may be booked in advance online so that the Curators will be making themselves ready for the group visit.

Online Payments

Like we have online booking, payments can also be made through the Internet. For example, Phone bills can be paid online. Nowadays most of the essential needs gone online so the payments are easily made without any problems. Fees for courses conducted in the museum, advance booking of groups of visitors to the museum including the photographic charges, booking of the Museum Theatre and payment of the charges etc., can be made very easily with out wasting the time of the individuals and the staff of the museum.

Online Monitoring

Online monitoring makes the work easier. Consider a situation. A Machine is running in Chennai. The Administrator can control the machine online from anywhere in the world. The humidity and temperature in an air-conditioned gallery can be monitored from anywhere in the world online.

Accountability

E-governance will expose the functions of the government making officials more responsible and citizens more empowered. IT Managers are helpless to monitor and control the payroll system due to their inadequate knowledge of computer handling.

Website

Website is being used by most of the organisations. The Department of Museums has launched a Website for 1400 pages. His Excellency, the President of India, Dr. A.P.J. Abdul Kalam during his talk on 19th June 2003 at the Government Museum informed the gathering that he came to know much about the museum only through the Museum Website just before he came to the museum.

Conclusion

E-governance is getting popular, as many have come forward to learn various forms of e-governance. But at the same time many have got disinterested as they find it difficult to enter into this system. But, this is a welcome situation in the institution of museums to adopt e-governance in the days to come for serving the society still better.

Bibliography

1. Banerjee, N. R., Museum and Cultural Heritage of India, Agam Kala Prakashan, New Delhi, 1990.
2. [http : www.mit.gov.in](http://www.mit.gov.in)
3. Jeyaraj, U., E-governance and Citizens, Museums' Journal, Vol. 2003.
4. National Gallery of Victoria, Melbourne, What is On, October-November 2000.
5. Public Administration Theory & Practice, Deep and Deep Publication Pvt.Ltd., New Delhi. 2003.
6. Raj Kumar, E., E-governance in India : Problems and Prospects, Public Administration in India, C.D. Bhartnal, Kumkum Kishore, APH Publishing Corporation, New Delhi.
7. Sivaramamurti, C., Directory of Museums, 1959.
8. Sudhir Andrews, Hotel Housekeeping Training Manual, Tata McGraw-Hill Publishing Company Limited, New Delhi, 1995.

CHAPTER IX

MUSEUM EDUCATION

Museums and the Public

As far as museum public is concerned, few generalisations are possible because it differs from country to country, from region to region and even from museum to museum. It is possible to state, that almost any museum public is extremely heterogeneous in its make up, that it is composed of people from a wide range of age limits, and with varying economic, ethnic, social and educational back grounds. The different motives amongst visitors, are the aesthetic, the romantic and intellectual.

Museums cannot function with out public. Now-a-days museums start marketing their products at every level. In the European countries the museums receive many senior citizens. Museums have become a main source of attraction of the tourists. In India too people have learnt to visit other state museums regularly. People need good stuff in the museums. It is the duty of the museums to market good stuff for the education of the public and their enjoyment.

a. Museums and Their Educational and Cultural Responsibility

Museums are permanent institutions, which acquire, conserve, research, make available and interpret their collections for public benefit. They support and complement the work of the formal education and are centres for informal learning for the wider public. They communicate with the visitors across barriers of language and culture and have integrity as real artifacts, which transcend interpretation. The educational function of a museum has always been central to its purpose. It is implicit in almost all it does and applies to visitors of all ages and academic background. At present, education has become the centre of attention for the museologists.

b. Knowledge of the Community

The community is aspiring to receive more knowledge about our own past. Unless the expectation of the public is satisfied, then the museum fails to get them back for the second time. Unless the museums do research on the objects and their people, their environment, technology etc., museums fail to give more information on the objects.

c. Evaluation of the Public

The study of the public is essential to provide good educational programmes depending upon the need and taste of the visiting public. It is in practice to make a visitor's survey when a museum gallery is thrown open to the public. Visitor, in general, refers to a person who comes to a place to spend sometime alone or with others. A museum visitor may be defined as a person who actually visits the museum and spends sometime there. There are different types of visitors. Many have classified the visitors into various categories.

They come under

- General public
- Children
- Specialists
- Formal Educationists,
- Couples
- Adults
- Singletons

Types of Evaluation

There are two types of evaluation. They are visitor evaluation and Exhibit evaluation.

Visitor Evaluation

Visitor evaluation is done to find the characteristic life style, interests, opinion, visitor behaviour, etc. There are various types of visitor evaluation.

- **Demographics** : Evaluating the characteristics of museum visitors such as age, education. This is required to give programmes depending upon their mental strength.
- **Psychographics** : Evaluating the life styles, interests, opinion, etc., so that varieties of activities will be programmed for the visitors.
- **Visitor Behaviour** : The evaluation of the visitors before the visit, during the visit and after the visit to the museum is essential to prepare the programmes to the visitors.
- **Museum Learning** : Evaluating the visitors on their interest in the subject of interest etc.

Exhibit Evaluation

It is meant for having quality programmes in the museum. This evaluation of the exhibits is also done with the help of the visitors. There are different types of exhibit evaluation.

- **Front-end evaluation** : Before the exhibition is arranged with the help of the visitors the theme of the exhibition and the type of arrangement etc., are evaluated.
- **Formative evaluation** : On the formative stage of the exhibition the exhibition is evaluated with the help of the visitors.
- **Summative evaluation** : During the time of the exhibition, the visitors are used to evaluate the exhibition. The suggestions are received from the visitors.
- **Remedial evaluation** : The exhibition is evaluated after carrying out the suggestions or the improvement necessary.

Visitors Attendance Survey

Visitor attendance survey is very essential in order to evaluate the visitor counts, visitor type and the target audience. The data is gathered in many ways. Many museums gather the data with the help of commercial firms. The author has conducted many surveys with the help of the students who study museology. The information was useful in finalising some of the public facilities to be provided in the museum. Depending upon the number of the visitors the programmes to be given are also to be decided then and there.

Visitor Survey is required for the following reasons :

- To provide valid and reliable data of information about the visitors.
- To learn why people do and do not come to museum.
- To identify the actual and potential audience in order to target educational and fund raising programmes.
- To investigate audience expectations and needs in order to better start where is learner is.
- To collect data concerning relations to exhibits and exhibitions.
- To set priorities for short-term decisions and long term plans concerning exhibitions, publications, services and development plans.

Studies of Visitor Behaviour

The study of visitor behaviour helps in improving the standard of the exhibitions. In addition to the behaviour of the visitors, the opinions of visitors are of prime importance in assessing the effectiveness of the museum. The expectations of visitors should also be considered. Generally, visitors returning to a museum will expect to see new things, as well as renewing their acquaintance with established favourites. Most visitors not only expect high standards of presentation, but also the use of modern techniques. The substance of an exhibition must also be sufficient to justify the visit.

Communication and Interpretation

The concept of the museum as a medium of communication is not new. A major role of the museum is to facilitate an encounter between object and observer. According to Freeman Tilden, interpretation is an educational activity, which aims to receive meanings and relationships through the use of original objects by first hand experience and by illustrative media rather than to simply communicate factual information. The chief aim of interpretation is not instruction but provocation. Interpretation should aim to preserve a whole rather than a part. Information as such is not interpretation. But interpretation is revelation based upon information.

Museums as Centres of Long Life Learning

Mr. Peter Brooker, one of the Secretaries of the National Heritage of the UK has opined as follows:

“Museum education has in some instances become more peripheral to other central functions such as curation or conservation. I believe it is now time to re-emphasise education as part of the core of museums”.

Museums have the first hand source materials, which help the informal educational institutions. Increasingly, the materials of the past reveal the culture / environment, ethnology etc., enshrined in them. It should be the case that museums attract repeated visits of the visitors.

According to Eilean Hooper-Greenhill -“Education in museums is life long, active, lively, participative and innovative. It is based on the collections, the sites and the professional work of museums”.

The late Sir Asutosh Mukherjee was one of the first Indians to emphasise the educational role of museums in unequivocal terms. During the centenary celebrations of the Indian Museum, Kolkata he said, “Museums must be equipped adequately for the fulfillment of three principal functions, viz., firstly for the accumulation and preservation of specimens such as forms the material basis of knowledge in the arts and sciences; secondly, for the elucidation and investigation of specimens so collected; and thirdly, to make suitable arrangements calculated to arouse the interest of the public and to promote their instruction”. Late Pandit Jawaharlal Nehru during the centenary celebration of the Government Museum, Chennai in 1951 said, “the whole point of museums, whether they be museums of antiquity or museums of modern life, is that larger and larger number of people should visit them and learn from them”.

Educational Programmes

In the museums there are two types of programmes of education. The programmes may be direct or indirect; serve the people or the teacher, serve schools and colleges or a wider audience; be formal or informal. They are:

1. Intra-mural Programmes and
2. Extra-mural Programmes.

1. Intra-mural Services

The services to those who visit the museum are called the intramural services. This is in the form of direct service to pupils, direct service to the teachers and lecturers, the general public etc.

Indirect Service

The service in the form of literature is a form of indirect service. The literature should be linked to the social curriculum. Provision of publications-based service is also important in museums with a limited number of education staff facing heavy demands.

2. Extramural Service

Extramural services are nothing but the outreach programmes. Loan, mobile, exhibition on sites etc., field visits, clubs, holiday activities, museum guild, resource room, education centre for schools, colleges, families, community.

The Educational Role of Museums

Museums are one of the most important repositories for a wide variety of primary source materials. The objects in the collections represent the best of man's social, economic and natural environment. The crucial factors in utilising the museum materials for school courses are:

1. Awareness by teachers that it is there and can be used in a variety of ways and
2. The attitude of the Curators in making it available and accessible.

It is a two-way communication system and neither side can rely on the other to always take the initiative. In the case of museums where an Education Officer is available, the problem of communication is eased.

Services to be Provided by Museums

Museums, either small or large, whether governmental or non-governmental, are rather compelled to disseminate to the visitors as well as non-visitors and provide services both inside and outside the museum walls.

Services for Schools

Museums and galleries should provide a wealth of educational experiences, resources and services that will support and enrich pupil's work in school and will help them to receive a balanced, relevant curriculum. Children learn from first hand experience of learning in museum crosses subject boundaries and a single visit serves a number of curriculum areas.

Services Inside the Museum

Museums should be included in the National Curriculum as in the case of UK museums. Museums should devise their own methodology to provide maximum service inside the museum. It will be better for museums to have separate entrance for students as in the case of British museums so that the students may have a disturbance free museum visit. The museum educational staff may chalk out various programmes for the students. The museum education staff in consultation with the school teachers and other educationalists may chalk out programmes. Activity sheets prepared for students and teachers' pack for teachers will help the students to use the museum better to teach students. In the subsequent visits the teachers will be able to help the students of their own according to the curriculum. The UK museums do serve the teaching community and the students in this way and the museums attract students very much.

Talks and Tours

It is better always to take up students group ranging from 20-30 students. Programmes may be fixed with various schools all the working days of the week. It is always enjoyable to motivate the students to receive the information through museum objects. I happened to go along with a group of 12 students aged 6-7 years in the National Gallery, London. The students learnt about plants, trees, flowers, fruits and various seasons very well using paintings. Thus museums can teach students and teachers alike. Volunteers are mainly used for this purpose in both the European and Australian Museums.

Lectures

Museum educational staff can teach the student group in seminar rooms with actual handling of objects. This seems to be better as they are dealing with the real objects without any interference, in closed rooms. Specialist educational staff may handle the subjects. It will be still better if the artist teaches about the paintings in the museum. I have seen in the Tate Gallery, London the artists themselves come to the gallery and teach group of students. They are called as Floor-talks in Australia. Besides these, lunchtime lectures are also arranged. In Australia, the National Gallery of Victoria arranges lunch time-talks.

Audio-visual Programmes

Audio-visual education is always better for students. Audiovisual rooms may be useful for screening special films pertaining to their subject in specified times as a routine. Most of the museums in India follow this activity for the benefit of the students. Chennai Museum has purchased video camera, video player, LCD projector and a wide screen for screening to larger group as well. Special events are videographed in advance. Indian Museum, Calcutta has a Video corner where films, videocassettes are screened at specified times.

Activity Room/Discovery Centre

Activity room or discovery centres are created in some of the museums in India. This is common in European Museums. In such rooms the original objects are kept for the students to touch and feel and enjoy. In the Government Museum, Chennai it is a customary practice that the blind students have an access to the original objects and participate in competitions related to the objects. In the computer world students may use the computer and get all the relevant information about the objects in a museum. National Museum of Natural history, New Delhi has got the facilities for the school children.

Young Visitor's Area

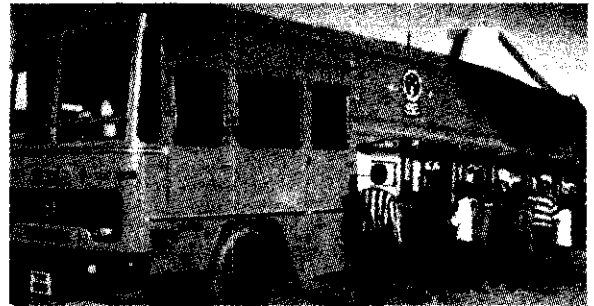
Several areas are at the disposal of young people in some of the museums. They are workshops, library, audio-visual and computer centres. Some museums offer different kinds of activities. There are various options for children such as lecture-visit, exploration visit, workshop visit, discovery-visit, open-visit. The Musee d'Orsay, Paris conducts many educational activities as mentioned above.

Competitions

Competitions are another important activity, which motivate students to learn more about the museum objects. The Government Museum, Chennai and its district museums in the State of Tamil Nadu is arranging many competitions through out the year. Curators of different sections conduct many quiz programmes for students. Students visit various sections of the museum and keep abreast with the general information about the objects. Besides this, competitions on various crafts, paintings, oration, essay writing, photography, may be conducted to motivate to students to have more understanding and involvement in the subjects. Competitions on exhibition of coins, stamp, etc. collected by them can also be arranged and given prizes to the best collections. The Sit and Draw Art Contest of the Nehru Children's Museum, Kolkata draws over 7,000 students at a time. Among them the best students are sent to New Delhi for national contest and scholarships are provided to the winners.

Services Outside the Museum

Outreach programmes are also as important as the programmes within the museum for the rural students. It is a failure in the Indian context as these programmes are not regular. I have tried many out reach programmes in the rural areas and was successful. Giving lectures about museums in the assembly times in the schools, arranging exhibitions in schools motivated school students. On special occasions students were taken on a cycle rally carrying various pictures depicting our Cultural Heritage along the streets and to various schools. Students were asked to see the exhibition taken in cycles and lectures were given to the whole school. I can call this as an exhibition on wheels. National Museum, New Delhi, Indian Museum, Kolkata, Salar Jung Museum, Hyderabad, Viswesvarayya Technological Museum, Bangalore, Periyar Centre for Science and Technology, Chennai etc., have mobile exhibition units. Even though they are functioning this programme in India is not successful. In the UK museums trading organisations for specific period sponsor such outreach programmes.



Mobile Exhibition Unit

Services for Teachers

One of the well-known facts is that if one wants to teach the children, the parents should be taught first. Similarly in order to teach the students the teachers should be taught. Therefore museums should arrange conferences, workshops, programmes on how to make use of the museums in teaching. Research materials such as teachers' packs can be prepared by the museums as a guide for teachers and the same may be sent to the teachers on request or sold to schools. Government Museum, Chennai has conducted a series of courses in Museum Technique for the benefit of the teachers.

Courses

Short courses in the evenings or on Saturdays, Sundays and holidays may be conducted in art, craft, design, music, dance, conservation etc. Now-a-days diploma courses, degree courses in various subjects dealt by the museums are taught regularly. Government Museum, Chennai is conducting many courses in the museum regularly and is well attended by students and others. Students are taught on conservation and are used in cleaning temples, churches and other less important monuments.

Educational Services for Visitors

A visitor with an average intelligence, with the help of labels, charts and photographs may understand the significance of an exhibit exhibited in a gallery but may not capture the correct idea about an object. Thus for the proper understanding of the exhibits, to appreciate and to enjoy the objects displayed, expert guidance in the form of official companionship is essential in a museum. Therefore large museums should provide various educational facilities to the general visitors. Museum personnel should see that the general visitors enjoy all the facilities.

Tours

There are different types of visitors and they may have limited time to visit the museum at times. It is the duty of the museum personnel to arrange programmes to suit their requirements. Museums extend services of guide service at specified times. But to my knowledge in museums the timings are not followed and the staff are also not much interested in this. In the European museums the educational staff of the museums or freelance guides or volunteers conduct these services. The tours are different in their names: Eye Openers, Gallery Tours, Guide Tours, Early Morning Tours, Special Tours, Highlight Tours, Sound Tours (recorded tape/headphones), Braille Tours for the blind, Gallery Walks, etc. Some tours are charged and some are free. I have seen in the Victoria and Albert Museum, London that visitors are waiting in the earmarked places at the specified times. The educational staff, freelance guide or the volunteer comes to the spot and picks up the assembled visitors to the galleries. It was wonderful. Special tours are also arranged like this. For this the visitors must book in advance and they are charged. The specialists in the galleries give these talks

Talks

The educational units of the museums can arrange talks on special subjects and special exhibitions. If it is a small museum, the Curator himself should undertake this work. Museums may conduct various talks such as gallery talks, lunch talks, slide talks, talks by the artists. Even the artists can give talks on their own painting exhibited in the museum. Many museums in India are arranging such talks in the evenings or during the opening hours itself. I have seen some announcement near the painting on which talks are to be delivered. Visitors who are interested come and assemble on the notified time and listen to the speaker.

Lectures

Lectures are essential in the museums to introduce to the public about any new programme or object or exhibition. Large museums like National Museum, New Delhi, Indian Museum, Kolkata, Salar Jung Museum, Hyderabad, Government Museum, Chennai etc., regularly arrange lectures in the seminar rooms, theatres etc. Specialists, Curators, etc. speak in the museums. Some museums arrange monthly lectures on special topics. If any specialists visit the museum, they speak on their specialised subjects on request. The European museums and Australian museums encourage lectures such as lunch-time lectures, evening lectures, evening openings, seminars etc.

Study Days, Conferences, etc.

Study days can provide opportunities to students, interested persons etc. to know more about special topics, special exhibitions, exhibits, galleries etc. Conferences, workshops, discussions, etc may help to those interested. It is a great success in all my endeavours. Museums may charge all those who participate in such programmes of necessary.

Special Events

Most of the museums arrange special events for families in museums after working hours. Music events, family concerts etc. are some of the special events which museums can think of. Small museums in Tamil Nadu normally arrange small get together in collaboration with non-governmental organisations. Special talks take place during the get together. The non-governmental organisations take care of the expenditure. In case the museums take care of the expenditure, then museums can charge the programmes. This can have great effect on the community groups. In my experience, museums are serving a lot to the community.

Training Programmes

Museums arrange many training programmes for the benefit of the teachers, students, public, handicapped etc., in India. Lucknow State Museum is conducting regularly to the handicapped on the making of plaster cast models and handicrafts and issues certificates to them. Chennai museum was giving training to students and interested persons in Taxidermy. At present this museum provides training in the name of Preservation of Biological Specimens. This museum provides training in conservation to the persons including students in the name of Care of Museum Objects since 1974. Recently the Executive Officers, who are working in the Hindu Religious and Charitable Endowments Department receive training in Care of Temple Antiquities. Similarly the Archivists receive training in Care of Archival Materials. There are many requests from various quarters of the public asking for training programmes. Students are trained in the conservation of stone and are utilised in the conservation of stone monuments. Public also show much interest in this. There will be some programmes for the housewives in the Conservation of Household Artifacts. Museum charges the participants in all these programmes.

Adult Education

Adult education is provided by the museums at all levels. Courses on various subjects related to museum are provided. Local clubs and societies such as Coins Clubs, Archaeological Society, Endowments, Conservation Clubs, etc., provide very good berth to the old aged visitors.

Programmes for Handicapped

Museums find their way to educate the handicapped students and public. Sound guides are provided for partially sighted visitors. Blind students are sometimes allowed to touch the objects and enjoy. In the Chennai Museum it is the practice that the blinds are given an opportunity to touch the object and tell the name of the objects. Such quiz programme conducted has created a good name for the museum. In the Victoria and Albert Museum some objects are left to be touched by the blind visitors and they have the label in Braille. The Government Museum and Art Gallery, Chandigarh has access to the blind and they have braille description and some objects are ear marked for touch and feel.

Facilities Available

Museums can send information to schools, colleges and to individuals to avail themselves of the educational programmes offered by them. Interested individuals can be included in the mailing list so that the invitations to programmes, publication list, newsletter etc., may be sent to them.

Museums sell replicas, souvenirs, postcards, pens, bags, calendars, miniatures etc., so that the visitors can take the memories from the museums by taking with them the materials from the museum sales counter.

Presenting Archaeology to the Public

The major interpretive and promotional components of archaeology special events include theme development, poster production and statewide events. Many themes are chosen and training is provided to various levels of public. Special volunteers' programmes are also provided. Volunteers have great impact on the public to teach archaeology and other such subjects in popularization.

Poster production is made by arranging poster design competition that encourages artists, photographers and archaeologists alike to lend their talents to promoting awareness and appreciation of cultural resources. The winning poster is distributed through out the State or country to advertise the programme. Best entries are included in the travelling exhibits.

Steward programmes produce many stewards to take care of museum activities or the archaeological sites.

MUSEUM EDUCATION CHECKLIST

In order to check whether the museum is carrying out the education for the benefit of the school children the following questions may be asked to the school by the personnel involved in the museum education:

1. Are visits to museums part of your school's curriculum?
2. Have pupils in your school visited a museum recently?
3. Is your school receiving information about local and national museums?
4. Is there a member of staff responsible for liaising with local museums and informing other staff of developments?
5. Are you encouraging visits to museums?
6. Does your local museum display children's work? Does your school contribute?
7. Does your school make provision for the in-service training of teachers in skills required to make good use of museums? Some schools have made use of an in-service day to do this; would this be appropriate for your school?

Bibliography

1. Amalenda Bose, Can Museums of Science Serve the Rural Community, *Journal of Indian Museums*, Vol. XXXV, 1979.
2. Banerjee, N. R., *Museum and Cultural Heritage in India*, Agam Kala Prakashan, Delhi, 1990.
3. Banerjee, N. R., The Museums and the Education System, *Journal of Indian Museums*, Vol. XXXV, 1979.
4. Bedekar, V. H., Museums and Rural Community: An Introduction, *Journal of Indian Museums*, Vol. XXXV, 1979.
5. Bedekar, V. H., *So You Want Good Museum Exhibition*, Department of Museology, M. S. University of Baroda, Baroda, 1978.
6. Bhattacharyya, P. K., Education through Museum, *Bulletin of the Assam State Museum*, No. XI, 1989.
7. Caygill and Geoffrey House, British Museum, London, Occasional Paper No 64, 1986.
8. *Cultural Trends*, Policy Studies Institute, London, 1991.
9. Devasahayam, N., Presentation in Educational Activities of the Anthropological Galleries with particular Reference to the Government Museum, Madras, Thesis Presented to the Partial Fulfillment of the Post-graduate Diploma in Museology, University of Baroda, 1967.
10. Douglas A. Bassett, *Museums and Education: A Brief Biographic Essay*, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
11. Dwivedi, V. P., Educational Services in US Museums and the Lessons They Provide for India, *Modern Museum*, Ed. Smita J. Baxi and Dwivedi, V. P., Abhinav Publications, New Delhi, 1973.
12. *Education for All*, The Victoria and Albert Museum, London, 1992.

13. Freeman Tilden, *Interpreting Our Heritage: Principles and Practice for Visitor Services in Parks, Museums and Historic Places*, University of North Carolina Press, 1957.
14. Graham Carter, P., *Educational Services, Manual of Curatorship*, Ed. John M. A. Thompson, Butterworths, 1985.
15. John H. Jameson Jr., *Presenting Archaeology to the Public*, Altamira Press, USA, 1997.
16. 15. John Reeve, *Education in Glass Case Museums*, *Journal of Education in Museums*, No. 2, December, 1981.
17. *Journal of Education in Museums*, No 2, 198 1.
18. Julie Barooah, *Visitor and Non-visitor Study in Museum*, *Bulletin of the Assam State Museum*, No. XIV, 1998.
19. Michael Belcher, *Communicating through Museum Exhibitions, Manual of Curatorship*, Ed. John M. A. Thompson, Butterworths, 1985.
20. *Museum Education and Your School*, Museums and Galleries Commission, London and the Museum Studies, University of Leicester, Leicester, 1992.
21. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
22. National Gallery of Victoria, *What's On*, Melbourne, October-November 2000.
23. Pant, G. N., *Role of Museums in the Growth of Contemporary Art*, *Journal of Indian museums*, Vol. XXXIX-L, 1993-94.
24. *Quality of Service in Museums and Galleries*, Museums and Galleries Commission, London.
25. Satyamurti, S. T., *My Recent Observations on European and American Museums*, *Studies in Museology*, Vol. IX, 1973-74.
26. *Science Museum Education Unit Guide to Galleries and themes*, The National Museum of Science and Industry, London.
27. Shiddanagoudar, H. M., *What a Rural College Museum Can Do: Some Basic Ideas*, *Journal of Indian Museums*, Vol. XXXV, 1979.
28. Stephen White, *Implications of Technologies for Museum Education*, *Museum Education*, Ed. Erie Larrabee, Smithsonian Institution, 1968.
29. Steven A. Grigg, *Evaluating Exhibitions, Manual of Curatorship*, Ed. John M. A. Thompson, Butterworths, 1985.
30. Stewart Coulter, *Resources for Courses: Meeting the Needs in Local Museums*, Ed. Timothy Ambrose, *Education in Museums-Museums in Education*, Scottish Museums Council, Her Majesty's Stationery Office, Edinburgh.
31. *Survey of Visitors to the British Museum (1982-1983)* by Peter H. Mann, edited by Marjorie The Educational Activities, Musee d'Orsay, Service de Presse et de Relations Publiques, Paris.B
32. *The National Gallery Report, April 1989-March 1990*, Published by the order of the trustees, National Gallery Publications Limited, London, 1990.
33. *Victoria and Albert Museum, London, Strategic Plan 1992-93*, August 1993.
33. *Visiting Museums: A Report of a Survey of Visitors to the V&A. Science and National Railway museums for the Office of Arts and Libraries*, London, HMSO, 1984.

CHAPTER X

MUSEUM RESEARCH

Introduction

The word research means an inquiry of some depth and detail aimed at exposing facts about things or events which have not hitherto been recorded, or aimed at relating observations about things or events in such a way as to form the basis of a connected contribution to knowledge. More particularly, the word is used with reference to material objects, which constitute the physical evidence of some activity in the field of human creativity. What distinguishes museum research is that it starts from the study of original objects and specimens in the museum collection. Research is one of the essential functions of a museum. It is the duty of the museum Curator to bring the noteworthy objects and their associated information to lime light through their research. It is equally significant that a museum should encourage research by providing all sorts of facilities to the scholars and students who are interested in its collections. Every single specimen needs a thorough inquiry and research to communicate its meaning to scholars, students and ordinary visitors according to their ability to understand and enjoy.

The concept of museum research to day has greatly changed. It applies all possible methods and techniques to reveal every truth relating to the objects in a museum collection. The nature of museum research will vary according to the kind of the collections. The research may be inter-disciplinary or multidisciplinary in nature in a multidisciplinary museum. Museum research is essential from the materials to be used in display such as raw display materials, paints, light, etc. If proper research is not done then the museum objects are affected.

Scope of Museum Research

The scope of museum research is unlimited in a museum collection. If it is a natural history museum the scope is limited to the environmental research, species, specimens etc. The research in a science museum is about the science and technology of the objects and principles. In an art museum the research is concentrated on the life history of the object, composition of the object, information which is hidden in the object, their utility, techniques etc. Research is essential in the choice of the building, the building materials, display materials, light, environment, conservation, restoration etc. Research can be done on the intangible part of the objects also. This is very much needed to display objects in their right environment.

Nature of Research

Museum research in the earlier days was on the exhibits. The scholars paid much importance to the period, provenance, material, manufacturing technique, characteristic behaviour, etc., of the object along with the historical, archaeological, cultural significance in the past. The research was to know about our past, our cultural heritage and achievements of our people in the past. But the researcher or the Curator is interested in the study of the people who are

the masters of the object along with the study of the object and its environment. There fore the museum research is an inter-disciplinary one involving scholars from various disciplines. The Government Museum, Chennai has undertaken many research projects in which various subject specialists are involved. In the project on Fingerprinting of South Indian Bronzes Archaeologist, Conservation Chemist, Radiologist, Metallurgical Chemist, Metallurgist etc., are involved. In another project entitled Hollographing of Bronze Icons Archaeologist, Conservation Chemist, Physicist etc., are involved. In a project entitled Conservation of National Art Gallery Building in the Government Museum, Chennai Art Historian, Conservation Chemist, Architect, Architectural Conservation Engineer, Geologist etc., are involved. In the restoration of heritage buildings in the museum architect, conservator, conservation engineer, historian etc., are involved. Curators cannot do research all the way. It is too much for the Curator to do research in various aspects of curatorial work. But it is his responsibility to arrange for research activities in the subject concerned. In the European museums each section has enough staff. Project involves Conservation Scientists, Environmental Scientists, Architects, Conservation Engineers, Art Critics, etc. The author is fortunate that he conducts research on various facets of conservation through Ph.D. scholars who have registered under him.

Categories of Museum Research

The museum research can be categorised as

1. Internal research and
2. External research.

The internal research means the research undertaken by the curatorial staff. The external research means the research undertaken by researchers from out side. But the subject matter is either directly on the museum objects or indirectly.

Internal Research

Many universities are doing research in various fields. The museums are the places where the primary source materials are preserved and exhibited. Museums provide facilities for the external researchers to do research in the museums. For this, museums should give all facilities to the researchers to do the research without any problem. For this the researchers should inform the museum fairly well in advance and get the permission to do the research. The Government Museum, Chennai is extending all the facilities to do research in the museum. This has become still easier, as it had been recognised as a research institution to do research for the award of Ph. D. Degree by the University of Madras.

In European museums in order to help the researchers there is a study room in each section. In the British Museum, London all facilities are provided to the scholars to study the collections. The author enjoyed the patronage of the Coins Section of the museum when he had been to the museum in 1994. He was able to study the collections of the coins for few days. It was much encouraging that he was able to get the photographs with in a short time and they were

used in the report prepared by him later, entitled *A Technical Report on Coins of Arcot Nawabs*. In Tamil Nadu, the author guided many researchers by providing relevant information to the researchers in the district museums as the head of the museums at Erode and Vellore and at the Government Museum, Chennai as head of the Chemical Conservation and Research Laboratory in the subjects of history, Architecture and conservation respectively. In the present context the society expects any research programme to be oriented towards the human development. The research is now-a-day done on the mummies and the outcome tells the nature of the disease of the persons who were mummified. The research on the fossils tells us the changes in the anatomy of the animals and the climate, which helps to study the climate of the yore and to relate that with the present day climate to learn a lot on the climatology. The research on the ancient metals brings out information on the ancient technology and the method of fabrication etc. The study on rock art reveals the type of pigments used and the type of painting materials used in those days.

External Research Projects

Museums are also functioning as a repository of rare objects, which need to be researched. Various organisations have come forward to undertake research in the museums with the objects in the museums. In this the external institutions meet all the expenditure. The Australian Museum, Sydney has come forward to undertake a research project entitled *Environmental Monitoring*. The Indira Gandhi Centre for Atomic Research, Kalpakkam is interested to take many research projects in the Government Museum, Chennai with their funds. Many individuals have taken research projects exclusively on the Government Museum, Chennai and are awarded degrees for their work. A Study on the Amarawati Limestone Sculptures in the Government Museum, Madras, (Sr. Therasiamma), *Experimental Study of Deterioration and Restoration Procedures for Historic Buildings in Stone*. Mrs. A. K. Kasthurba, Lecturer in the Regional Engineering College, Cochin did research on the *Structural Condition of the National Art Gallery and the Suggested Restoration of the Building*. Many architecture students studied on the architecture of the museum and reports were prepared on them. Many have been awarded degrees based on the research. Curators or the curatorial staff regularly undertake research work to increase the knowledge about the objects in their possession. When one object enters the museum collection it is the duty of the curatorial staff to study it, do research on it and publicise the new findings. Curators undertake research tours to different places to get information about the environment in which they were found, etc. They make inquiries with the people who know about them in the locality of the object from where the object were collected. Immediately after the receipt of the objects, they do preliminary study and information is given to the press so that the information comes out so that the public will be attracted to visit the museum. The curatorial staff carries out most of such research works within the monetary support of the museum. There are various sponsoring agencies, which finance projects. Indian Council for Historical Research, Delhi; Department of Science and Technology, New Delhi; Nehru Trust for Indian Collections in the Victoria and Albert Museum, New Delhi; Nehru Fund, New Delhi etc. in India and International Agencies

like ICOM, UNESCO, Getty Conservation Institute, California, Alexander Von Hoff Foundation, Germany etc., are some of the funding agencies for undertaking research projects in museums. Many museum Curators in the department of museums in Tamil Nadu have received research grants from the Nehru Trust, New Delhi for undertaking research work in the field of museology etc., in recent years.

Collaborative Research Projects

All the museums are not having the expertise required to undertake multidisciplinary research projects in the museums. In such cases the institution, which undertakes research projects has to collaborate with other institutions, which have the expertise and facilities to conduct the research. For example the Chennai Museum has to depend on the Indian Institute of Technology, Chennai, Anna University, Chennai, Indira Gandhi Centre for Atomic Research, Kalpakkam to conduct some multi-disciplinary research activities. The Department of Science and Technology, New Delhi has funded the project on Fingerprinting of South Indian Bronzes in collaboration with the Indira Gandhi Centre for Atomic Research, Kalpakkam. The other project is in collaboration with the Indian Institute of Technology, Chennai on the conservation of National Art Gallery. Yet another project is with the Anna University funded by the Government of Tamil Nadu on holography.

Museums as Research Institutions

The Anthropology Section and Chemical Conservation and Research Laboratory of the Government Museum, Chennai have been recognised by the University of Madras to conduct research leading to Ph.D. Degree in anthropology and chemical conservation. National Museum, New Delhi is a deemed university and is conducting many research programmes help of the scholars. The Allahabad Museum, the State Museum, Lucknow, Salar Jung Museum, Hyderabad, etc., are made as research institutions and are engaged in many research activities with the research scholars.

Conclusion

Research in museum can be extended in any direction as it comprises all subjects. It can be multi-disciplinary or mono-disciplinary. Many museological subjects are society oriented and research in this direction will be useful to the society but also will help the authorities to improve the display standard or making visitors to enjoy the visit to the museum. Most of the research based on the materials to be used had made provisions to safeguard the museum objects especially organic and metals like silver and lead.

Bibliography

1. Dwivedi, V. P., *Museum Research and Publications*, Modern Museum, Ed. Smita J. Baxi and Dwivedi, V. P., Abhinav Publications, 1973.
2. *Government Museum, Chennai as a Research Institution*, Compiled by Devasahayam, N., and Jeyaraj, V., Published by the Commissioner of Museums, Government Museum Chennai, March 1997.
3. Grace Morley, *Museum Publication and Research Work*, *Museology ad Museum problems in Pakistan*, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.
4. Jeyaraj, V, *Museum Research : An Important Aspect of Museums*, *Journal of Indian Museums*, Vol. LVII, 2003.
5. *Manual of Curatorship*, Ed. John, M. A. Thompson and others, Butterworths, 1984.
6. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.

CHAPTER XI

MUSEUM PUBLICATIONS

Publication is one of the activities in a museum. Museum has to go with publications which can help the scholars and public alike. Dissaur Evan of the Soviet Union brought out the first museum catalogue in 1741. At the instance of the Central Advisory Board of Museums, an annual publication entitled to Indian Museums Review was brought out in 1957. The Annual Review was intended to help in the coordination on museums for the students of museology and for the lay readers and also to stimulate museums in the country to a greater awareness of their needs. Museum publications can be classified as popular and research publications.

Popular Publications

Museums need to make publication to popularise the museum objects and their activities. The popular publications may be brought out in the newspapers, pamphlets, handouts, banners, posters, books, booklets, monographs, bulletins, newsletters, journals, website etc.

Write-ups for News Papers

News papers are very good media of museum publications. Now-a-days the news paper media is giving very good publicity to the museums and their activities. New findings, information about objects and museums are coming as news in the news papers. The author had the opportunity when he was serving in the district museums at Erode and Vellore to popularise certain information on new findings to the public through the dailies. Reviews, special and popular articles about museums and museum exhibits or programmes also appear regularly in the news paper media. In the All India Radio, Chennai the write-ups sent for announcement as news are announced under News Service. The write-ups should be short, informative followed by photographs pertaining to the subject.

Pamphlets and Handouts

Museums release pamphlets or hand outs about exhibitions, exhibits, objects, various aspects of art, culture, scientific details etc., museum plan, map, timings, facilities etc. There is no museum in European countries without a pamphlet. Museum displays various pamphlets in more than one language at the reception counter and the visitors can make use of them. This is now slowly entered into the Indian museums and museums inform the visitors about the museum before they visit. In Tamil Nadu museums such pamphlets are printed and distributed to the visitors who are interested. The author introduced this practice in Erode and Vellore when he was the Curator in those museums. On special occasions he released such pamphlets with the help of sponsors. Special exhibition on birds, art, coins, temples, philately, Jainism, Ida Scudder, Arni Jagirthars. Monuments in North Arcot are some of the pamphlets to name. They were well received among the visitors as well as scholars. While the visitors enter into the museum they take in the handouts and read. The handouts are also distributed to the

public to visit the museum or special exhibitions. This type of publications is issued to create awareness about our art and culture among the public. Similarly folders, leaflets, guide maps, broad sheets are the various other publications in a museum.

Banners and Posters

Banners and posters are very important in order to popularise the programmes of the museums. In order to invite the general public to the museum, banners are worded suitably and exhibited at important points of the town or city. Many museums specially design posters to publicise its activities. Hotels, railway stations, bus stations, community halls etc., are chosen to fix the posters. I have seen in London along the subways the posters permanently displayed for the public view. The pictures of rare objects are thus brought to the sight of the public. The author has tried it successfully when he was the Curator of the Government Museum, Erode.

Newsletters

Museums issue newsletters to inform other museums and organisations about their activities. Even medium size museums now-a-days release newsletters either monthly, bimonthly, quarterly, half yearly or annually. The newsletter normally consists of the history of the museum, recent addition to the museum, important exhibits, details of the past events, publications, forthcoming events, staff changes, working hours, etc. The Chennai Government Museum previously used to issue half yearly newsletters. But recently it was issuing quarterly newsletter in Tamil. Of late it is releasing half-yearly Museum's Journal along with the newsletter. These newsletters thus carry the news from the museums to the public. This builds up a link between the museums and between the museums and the public.

Catalogues

Cataloguing of the collections is nothing but the minimum legal obligation of a museum or gallery to make known information about what it holds, and is the prime and immediate need in the field of scholarship. Simple lists of exhibits do not develop knowledge to any great extent, and catalogue should be as detailed as possible, not only describing dimensions, materials used in manufacture and provenance, but also details of methods of use and the dates of manufacture and operation. They must also indicate the location and availability of the collection for further research. A more specialised form of catalogue is the kind, which is produced in association with a temporary exhibition. Here there is an opportunity to include material from other institutions, and discuss related specimens. They are very important for proper communication between museums about the collections. Catalogues need not be prestigious and costly but should be effective. Simple catalogues should be within the capacity of most museum produce, for their basic function is to list, describe and illustrate with no need of lengthy discussion and synthesis. A summary catalogue contains additional information about provenance, previous collections and essential documentary references with a brief account of the history of the object and or any iconographical or stylistic feature of particular significance to an understanding of the content or subject matter of the work.

Exhibition Catalogues

Exhibition featuring particular aspects of social history provides a valuable opportunity for the publication of catalogues, particularly when specimens are being drawn from a number of separate and perhaps disparate institutions. The above approach is recommended. Much new research on specific aspects of art history or of the work of individual artists is incorporated in the catalogues of major thematic or retrospective loan exhibitions. Such temporary exhibitions may often be related to the permanent collections of the museum. They include items from those permanent collections which, because they are seen in a new context may deepen understanding of their place in the history of art and shed light on the culture of which they are a part.

Guidebooks

Museums consist of different galleries depending upon the size of the collections. Most of the museums have regular guides to help the visitors. Almost all the European museums are having either regular guides or volunteers as guides. But a few guides cannot help all the visitors. In order to help those visitors who want to have more information about the important exhibits in the galleries museums release guidebooks for the benefit of the visitors and the scholars. There are guidebooks to the whole museum, or only to the individual galleries or to the exhibitions. The author has written a guidebook entitled Guide to the Government Museum, Erode, Guide to the Government Museum, Nagapattinam and Guide to the Chemical Conservation Gallery of the Government Museum, Chennai. The Government Museum, Chennai has guidebooks for almost all galleries. Guides to the district museums have also been released for certain museums and the other guidebooks are under preparation. These guidebooks can be in the local language and in English as well. Some museum besides the guidebooks releases booklets on important exhibits of the museum as Highlights of the Museum.

Brochures

Brochures are the important publication of a museum. Most of the museums publish brochures with reproduction of the specific objects. Government Museum, Chennai some years back released a brochure, which tells about all the sections of the museum with important reproductions. Now, colour brochures have been released. Most of the large museums in India have published such brochures.

Worksheets and Workbooks

Worksheets are publications, which focus attention of objects in the collection and to help the visitors to understand the exhibits. They are designed to suit the requirements of specific age group. Workbooks are meeting the needs of students. They provide a record of the student's time in the museum and suggest follow up work to be done at home or school. Teacher's packages are published in order to equip them before they bring the students to the museum.

Picture Postcards, Slides etc.

Picture books are the collections of photographic reproductions of the masterpieces in a museum with their brief descriptions in a colourful manner. Postcards with colourful illustrations containing a brief description are also carry very important message to the visitors. The colourful well-illustrated post cards are also very important publications of a museum. Transparencies are well sought by the visitors especially by the scholars for their research work.

Research Publications

Research publications of a museum have a very good rapport with other museums, related institutions and the research scholars. They range from research articles, bulletins, reports, monographs to books. Some museums exchange their publications.

Research Articles

The Curators and the other curatorial staff do carry out research work regularly. The outcome of the research is brought out in the form of research articles. Curators present research papers in seminars and they are published in the journals. Some papers are sent to the journals and are published as research articles. Some times the research articles are published by the dailies also. These papers may consist of research findings. Some museums insist publication of the curatorial staff for the promotions. But in India it is not so. Anyhow, publications may help the individual in the selection of the candidate for higher promotion. Research articles not only help the scholars and the individual who publishes but also the visiting public and other museums.

Research Bulletins

Museums issue news bulletins regularly for the benefit of the scholars and the visitors and other museums and related institutions. Time to time certain research bulletins are released by museums on specific subjects. The Chennai Museum has released many bulletins in various subjects. In 2003, sixteen publications were released the same day. Many manuals and books were brought out. The author has brought out the Manual for the Conservation Gallery. There is a great demand for the bulletins of the Government Museum, Chennai from the counterparts from all over the globe. The Salar Jung Museum, Hyderabad publishes a bi-annual research bulletin regularly. Museums bring out bulletins regularly. The Indian museum, Kolkata, the Assam State Museum, Guwahati etc., bring out the bulletins for the benefit of the visitors and scholars.

Reports

Most of the research projects need the results to be brought out in the form of research reports. The reports have to be sent to the sponsors for record purposes. Any specific project should have a project report. The new findings also should come in the form of reports. The results of investigations, examinations etc., are also come out in the form of reports. The

author has brought out many reports at the end of the projects. Some have been published in the form of books.

Monographs and Books

Research outcome of some specific subjects is published in the form of monographs. Monographs on paintings, bronzes, stone sculptures etc., are some of the examples of monographs. Curators write on various subjects that the out come is published as books. Curators write booklet in order to popularise certain aspects of the museums. National museums have published many books, bulletins, journals etc., and are on sale in their counters. The Government Museum, Chennai has published over 200 publications and they are world known publications. This publication may be done by the museums with the help of the printing section in the museum, or DTP in the museum. Some times the publication is done with the help of private publishers. Some books of the leading personalities who are not the staff of the museum are also published by the museum. Sometimes outside agencies give grants to the Curators for the publication of the books.

Journals

Museums are interested in the publication of journals. This is coming under the category of periodicals. Many museums in India are regularly bringing out the journals for the benefit of the museum professionals, scholars and the general public. Government Museum, Chennai brought out some issues of the Museum Journal in 1996 and later it was given up. It started functioning continuously and it has brought out nine volumes so far. Museum based associations regularly bring out the journals, which are useful to the museologists.

Method of Publications

Most of the museums have the publication unit with in the museums. Unless frequent publications are made it is not advisable to have a separate publication unit. The National Museum, New Delhi, Indian Museum, Kolkata etc., have their own publication units. But, they do not have separate printing press. The Government Museum, Chennai does not have a separate publication unit but it has a printing press and a DTP unit for the publications of the museum. If there is no publication unit, the publication may be carried out by one of the units such as the Education Unit in the museum. Generally museums get funds for the publication of the books and other publications. Large museums set up a publication committee comprising the Director, the publication in charge, the Director of Stationery and Printing, one expert in the subject, a journalist etc. The matter to be published is submitted to the committee and the book is approved for the publication. Sometimes the manuscripts are sent to the experts for evaluation before its publication. The Director of Stationery and Printing brings out the publication. If the department is not able to print, a no objection certificate is obtained from the Department of Stationery and Printing and the works are entrusted to the concerned publisher, which quotes the lowest rates. The Curators themselves of their own publish some of the books after getting the necessary permission from the department. There

is no hard and fast rule in the case of private museums to publish the books. When the museum or any organisation brings out new publications a copy each to the following libraries should be sent :

Calcutta Public Library, Kolkata
Delhi Public Library, New Delhi
Central Library, New Delhi
Central Library, Mumbai and
Connemara Public Library, Chennai.

Publishing Works of Other Scholars

There are veteran scholars in certain subjects and they are requested to write books on the specified subject and the books are published by the museums. The writers are given an honorarium for the labour put forth in the work. Recently the publication of Dr. V. H. Bedekar entitled *New Museology for the National Museum Institute, New Delhi*, has published India. The papers presented by the scholars in seminars or symposia are also published by the museums and the authors of the articles are given a copy of the publication along with 20 reprints. Sometimes the authors are given an honorarium for their labour. The Government Museum, Chennai similarly has brought out many publications in the museum and they are still out standing works.

Reprinting of Publications

Museums sell out their publications in due course of time. But there are at times great demands for them. Such books need to be reprinted. In the Government Museum, Chennai many old books are reprinted and they are available in the sales counter of the museum. This work is entrusted with the private publishers as discussed above.

Publication through the Internet

Communication makes men together. The need to communicate is an innate desire in man and was born with the homospian. When human voice became inadequate, ancient civilizations devised drum codes and smoke signals to send messages ranging from simple announcements to warnings about impending doom. Today, these primitive methods have given way to electronic pulses. Computers are being used to send bits of information across the globe. Using telephone links and microwave radio transmission, data is transmitted across continents via satellites almost instantaneously. A computer, which is a very efficient and productive tool by itself, can be made more so by connecting it with other computers. The concept of computer networks was born around 1965. In a very short span of time, networking has become a very important part of computing activities.

Today the communication between computers has become extraordinarily fast. Modern technology makes use of satellites and fiber-optic cables to transfer data. Data may fly between distant computers at the rate of 1.5 million bits per second or more. Other computers in the

net work can access information on a single computer and out puts can be taken in a printer. When several personal computers are connected to each other, messages can be sent and received. The National Science Foundation Network allowed universities and research agencies to link up with its super-computers. Using modern technology, it permitted any computer in the system to link up with any other computer connected to the system. This growing Web was the birth of the Internet. This system has been used in the museums to get information and sent information to other museums. Thus the information in a museum will be available to the researchers and the needy through the Internet if it has its Website.

Bibliography

1. Dwivedi, V. P., Museum Research and Publications, Modern Museum, Ed. Smita J. Baxi, and Dwivedi, V. P., Abhinav Publications, New Delhi, 1985.
2. Grace Morley, Museum Publication and Research Work, Museology and Museum Problems in Pakistan, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.
3. Graham Carter, P., Educational Services, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
4. Nigam, M. L., Fundamentals of Museology, Deva publications, Hyderabad, 1985.
5. Robert Brace Girdle, Research: Technological Collections, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1985.
6. Sudhakar Sharma, Museum Publications, Journal of Indian Museums, Vol. XXXIX, 1983.

CHAPTER XII

PUBLIC RELATIONS

The word public is very important in any institution. Without public museum cannot function. There are three types of public. They are Input public (who provide basic resources and control the museum functioning), Internal public (the employees, volunteers, trainees etc., in the institution) and Consumer public (school children, families, teachers, scholars and any visitor). General public is a blanket term that covers different consumer public together. Museums are run by public money and it should serve the public in return. In the beginning the museums were functioning as private institutions and now they function as public institutions. It will be very difficult to survive or progress if it loses support, interest and goodwill of any of its public. As the museums have to the basic objective of creating awareness among the public, the role of public relation has assumed greater importance with the modern museums. Therefore the museums are now very keen in establishing close co-operation and co-ordination with all other like minded institutions to achieve their goal through the collective and concerted efforts in matters of collection, research, exhibitions programmes and education.

Dr. G. N. Pant has quoted the most widely accepted definition of public relation in his article "Public Relations in Museums", published in the Journal of Indian Museums, Vol. XLVIII, 1992:

"Public relation is the management function, which evaluates public attitudes, identifies the policies and procedures of an individual or an organisation with the public interest, and execute a programme of action to earn public understanding and acceptance".

The Institute of Public Relations, UK defines public relations as follows:

"Public relation is nothing but the deliberate, planned and sustained effort to establish and maintain mutual understanding between an organisation and its public".

Research in public relation is important for knowing public image of the museums and attitudes of the public. It serves as a base for setting public relations goals and formulating strategies. Evaluation is must for checking up to see how well the goals and standards are being met.

Nature of Public Relation in a Museum Setting

Public relation and publicity is very essential for the marketing of the museum activities. It is concerned not only with informing potential users about the museum but also with making it acceptable to its public. The museum should be presented, as a product, which the general public wants, or at least thinks it, wants.

Public Relations Department

In the European, Australian, American museums and advanced countries the public relations department of the museum help a lot to the public to further the idea of mutual co-operation.

This department is headed by an experienced Curator who has vast and versatile experience in the field of museum related work. He should enjoy the full confidence of the head of the museum. Starting from the public inquiries to the publicity work, the Public Relations Officer is responsible. The Public Relations Officer has to perform a difficult task of satisfying the public and the head of the institution. He is the bridge between the museum and the public, institutions etc. He helps every one in getting all pertinent information about the museum. This department arranges the VIP visits. He has to arrange for the press meets in consultation with the head of the museum. All inquiries from the public and scholars are attended by the Public Relations Officer. Sometimes he has to meet the officials in the Government for clearing the papers. He also deals all papers in regard to the exhibitions in consultation with the Curators and the head of the institution.

In the National Museum, New Delhi the Public Relations Officer deals with the above works. He has to send the circulars to all the institutions about the courses conducted by the museum. Some times he has to deal with the staff problems too. He has to get all relevant information about the national weeks and programmes to be arranged in consultation with the Curators and the head of the institution. In a small museum the Curator is carrying out the duties of the Public Relations Officer.

Relation with the Public

Curators' relation with the public is very essential in marketing the knowledge to them. The Curators should be able to judge the calibre of the visitors and should be able to serve the visitors accordingly. It is not possible for all the Curators to do research on the objects and disseminate the knowledge to the visitors. They need to approach the specialists in the field and keep abreast with the development in the field. All the sections of people should be attracted to the museums. Since the museums are satisfied with the traditional methods of relationship with the visitors, the museums are not able to cope up with the fantastic changes in the society. The public should be able to enjoy the museum in the maximum way and the Curator should be able to communicate with the public in the easy way through his presentation of ideas. Curators should win the public opinion to help him in every aspect. When the author was working in the district museums, he used to get many letters from the public regarding the availability of objects and had come forward to acquire such objects. Many even brought the objects to the museums of their own. Public had immensely helped to organise functions also in the museums. Many came forward to sponsor programmes.

Relation with Other Institutions

Museums have to interact with educational institutions and research institutions regularly. The Curators should interact with the students from schools and colleges. There should be a bridge between the educational institutions and the museums. The rapport between the schools and the European museums are apparent and the schools enjoy maximum benefit from the museums. In India too, the museums have begun to attract many school visits every day. The author had a very good rapport between the schools and colleges as a Curator of a district

museum. He used to visit schools and talk to the students about the museum, which attracted many school visits. All the programmes in the museum enjoyed the full attendance of the college and school students while educating them. Institutions like Lions Club, Rotary Club, Inner Wheel, Junior Chambers (JCs), Helping Hands, came forward to collaborate with the museum in various programmes, which brought the museum more closely to the institutions as well as to the public. Collaborative ventures will attract co-ordination between institutions in achieving the goal.

Relation with the Press

It is good to build up an excellent relationship with local papers. Press is a very important media, which should never be overlooked by the museums. Relevant information to the press is very important. Proper way of giving the necessary information to the press always helps the museum to transfer knowledge about the museum to the public. The newspaper articles will engender interest in the activities of the museum, many of which will, in turn, provide excellent and offer slightly offbeat articles for the papers. This will be as good as advertising, but with out any cost. In Government Museums, it is always better to pass on the news to the press through the Public Relations Officer of the district. But large museums will send the press note to the press independently. This was the experience of the author that he was able to get the press reporters every day, as he was able to collect new information and objects and was able to throw news to them. The public were well informed about the museum, the exhibits and day to day activities. The All India Radio, Tele Vision, and other media people should find the museum as a centre of activities or a vibrant institution.

Press Note

Museum has to give wide publicity in the press regarding its activities. Through short press notes in the dailies or in the weeklies, the interested public may be informed of the activities of the museum. The press note includes news topics like the recent acquisitions, a lecture to be held, a special exhibition to be arranged, opening of a new gallery, educational programmes, important publications, a prominent personality having visited or about to visit the museum, an important camp, or seminar, or course to be held, etc. This may catch the interest of the public and well wishers of the museum. The Public Relations Officer or the Curator is in charge of dispensing news to the press and maintaining contacts with the media service of his area.

Press Meets

It is one of the delicate tasks to release matter for the press. The cordial relationship with all the local newspapers is advisable rather than favouring one particular newspaper. The Curator or the Public Relations Officer must invite the press reporters to the museums on important occasions. The Curator may arrange for press meets during the important events. In case of large museums, the Public Relations Officer will arrange for press meets, interviews for the director to speak about the new developmental schemes and other matters to the public. The subject matter released to the press must be in conformity with specific policy of the institution.

Tele Vision and Radio Programmes

Tele vision and radio are nowadays very important media by which the museums can propagate their programmes to the public. In a small museum, the Curator invites the media people to the museum either to cover the activities of the museum or to cover certain aspect of the museum. Some times interview is also arranged. In the case of large museums the Public Relations Officer arranges interview for the Director of the museum with the Television or Radio programmes. The Tele vision or Radio invites the Curators or the head of the museums to give a talk or to be interviewed. The author has given talks on museum related subjects both in the Radio and Tele vision. Mostly the media people come and approach the museum authorities for recording or shooting specific programmes for school children and the public. Contact with media can be time consuming. However the consolation is that, if carefully planned in advance, it is usually time very well spent. The radio station involved may then assist with the publication support material for schools and may also be willing to make tapes of the programmes available to schools on loan. Without adequate forward planning, a television schools' programme of series on special subjects can result in severe pressure on the resources of the museum's education department.

Video Programmes

Department of Culture arranges many documentary films on museums. Some times the Department of Tourism also shoot films for the purpose of popularising our culture among the foreign tourists. Museums themselves some times prepare videocassettes for the use of the students so that they can be screened to the students and public as an outreach programme. Some museums prepare videocassettes and sell them to the visitors. In most of the European museums videocassettes are distributed to schools so that the teachers can view them before they come to the museum. This media helps the Curators or the Public Relations Officers to reach out to the community in a better way and they present the museum in a better way so that they may be attracted to have a visit to the museum.

Publications

The public relations department has to see that the museum stuff should be publicised through various means such as museum maps, pamphlets, guidebooks, newsletters, magazines etc. The invitations to various programmes, new arrivals, exhibitions etc., should be brought to the knowledge of the public as well as to the visitors. Many institutions contact museums and the information pertaining to the enquiry should be supplied by the public relation department. Normally in a large museum the head of the public relations will be a senior person who knows the functioning of the museum for a quite long time. He should be able to liaise with other Curators for getting information pertaining to the section.

Membership Organisations

It is essential that museums must have membership with other national and international organisations such as museums association, association of the conservators, ICOM, ICOMOS,

IIC, etc. these organisations sent their publications to the museums and various information received are transferred to the public. For example the Government Museum Chennai has become a member of the Indian Institute of Technology Service Centre for getting assistance for various projects conducted in the museum. Besides this the museum automatically becomes a member of the library of the IIT.

The Public Relations Department of a museum also takes care of the Friends of the Museum. Most of the European museums have the friends of the museums, which are taken care of by the public relations department. This department also enrolls volunteers.

Museum as a Public Facility

Museum is a public institution, which offers various facilities to the public. Much attention has to be provided to this face of the museum activity in order to market the product of the museum. In this the European museums have taken up a lead.

a. Organisation of Facilities and Services Geared to the Public

One of the foremost duties of the public relations department is organising the facilities and services to be offered to the visitors. The various facilities available in the museum should be well informed to the public prominently. Signboards should be kept in appropriate places in the museum entrance and in the galleries. The direction boards are also important. Either the various facilities available to the public may be informed in the form of pamphlets or notice boards. Some museums even make announcements about various programmes of the day. Even though Indian museums have not grown to that stage, there are good attempts have been made to bring the museum marketing to the forefront by the museum professionals.

b. Incoming Visitors

i. Access to the Museum

Foreign visitors do not know the location of the museum in the city or town. It is essential that museum signboards should be erected at important points in the city. Information about the museum can also be kept in hotels too. The location of the museum should be well informed to the visitors. The survey of visitors made by the museums has revealed that they found it difficult to reach the museum. In the foyer there must have all the information about the museum.

ii. Parking Facilities

Many museums set apart parking area in the museum campus or earmarked for that outside the museum. Parking facilities available in a museum makes the local visitors and visitors who come by hired vehicles feel a comfortable visit to the museum. The museums charge a small fee as parking fee; sometimes contractors collect the fee or museum staff sometimes. The public relations departmental staff should properly supervise whether the facilities are available to the visitors with out any difficulty.

iii. Public Transportation

Transport arrangements are yet another aspect of the public relations department. It is better to write to the Transport Department to write in the transports about the fact that the buses pass by the museum side. If there is auto stand nearby with the help of the local police the rates to different places from the museum may be fixed and the information may be displayed for the benefit of the visitors. The public relations departmental staff can help in giving information regarding the transport facilities from museum to different parts of the town and also to other cities and town including timings of important trains and flights.

iv. Information to the Visitors

Information to the visitors is very important to make the visit of the museum enjoyable. Most of the museums in the European countries give free pamphlets about the museums and the various facilities to the visitors in different languages, which they feel depending upon the visitor flow to the museum. There are museums, which have information in more than two languages. But most of the museums have two languages viz. English and the local language.

Bibliography

1. Grace Morley, *Museum Administration and Staff*, *Museology and Museum Problems in Pakistan*, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.
2. Michael M. Ames, *Museums, the Public and Anthropology*, University of British Columbia Press, Vancouver and Concept Publishing Company, New Delhi, 1984.
3. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
4. Pant, G. N., *Public Relations in Museums*, *Journal of Indian Museums*, Vol. XLVIII, 1992.
5. Sunjay Jain, *Public Relations in Museums: an Assessment of Dr. Pant's Point of View*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.

CHAPTER XIII

MUSEUM STUDIES

Museum studies describe museology, the cultural history and theory of museums. The development of museums throughout the nation has brought in the study of museums. The experiences out of setting up museums, maintaining a museum etc., slowly formed as a study. At present all these studies are termed as museum studies.

Museology

According to the ICOM, museology is a science dealing with museums-Museum Science. It consists of the study of the history and background of museums, their role in society, specific systems for research, conservation, education and organisation, relationship with the physical environment and the classification of different kinds of museums. In brief, museology is the branch of knowledge concerned with the study of the purposes and organisation of museums.

Museography

Museography is the study of methods and techniques employed in museum work. It covers methods and practices in the operation of museums, in all aspects of its functioning starting from its establishment.

A combination of museology and museography is museum studies.

History of Museum Studies in India

The Museums Association of India originated in 1944. In later years when the Government of India constituted the Central Advisory Board of Museums, the Museums Association of India was holding its meetings to coincide with the meeting of the Central Advisory Board of Museums. This is a forum, which advised museological principles to the museums. There was an absolute need for the museum studies-museology.

In 1965, an UNESCO sponsored project on Survey of Indian Museums by Mr. Philip S. Rawson, Curator, Durham Museum of England, published a report titled India Museology which states in its introduction that, India, too, is leading the world in the University training of museology students.

Museum Studies in India

In 1971, there were 5000 museums in the USA. But, there were only 16 postgraduate museology courses in existence in the USA. But in India there are over 700 museums. There are museology courses only in a few Universities.

The M. S. University, Baroda was the first University which started a PG Diploma course in Museology even as early in 1952 in collaboration with the Museum and Picture Gallery, Baroda. The Calcutta University started similar course in 1958. The museum training was provided

in Asutosh Museum. The Banaras Hindu University started the PG museology course with special emphasis on art history. The Birla Industrial and Technological Studies at Pilani started a master's degree course in science and technology. It is now discontinued. Prachya Niketan, Bhopal conducted museology course. It is also now discontinued. The State Institute of Archaeology, Art History, Conservation and Museology (SIAACM), Tripunithura, Kerala is also conducting diploma courses in museology.

A few other universities have started teaching museology, such as, six-months course on Museum Studies by the North Bengal University, West Bengal, Bachelor in Museum Studies / Conservation and Master in Museum Studies / Exhibition Designing by the Rai University, Raipur, Chattisgarh. Sambalpur University, Orissa Gas started a post-graduate course in museology. In Bihar also there is one university which provides Museology Studies. Diploma courses in museology were started in Aligarh Muslim University and Bhopal University.

In 1974, the Government Museum, Chennai started a course called "Care of Museum Objects" for a month exclusively of its own. Even though its main thrust was on conservation. It covered the various facets of museology. Today the participants display the objects on exhibition at the end of the term.

In early 1980s, the National Museum of Natural History, New Delhi organised a diploma course in museology. This was the first museology course ever organised exclusively by a museum. In 1986, the Salar Jung Museum, Hyderabad in collaboration with the Osmania University, Hyderabad started a post graduate diploma course in museology. Persons working in museums with BA/BSc or persons with MA qualification are eligible for this course. The National Museum, New Delhi of its own started a certificate course on museology for 45 days in which museum personnel were trained. At present the National Museum, New Delhi has started a National Museum Institute, which is deemed to be a University. This conducts post-graduate course on museology.

From 1995 onwards, the Madras Christian College, Tambaram, Chennai has started BA History-Vocational group in Archaeology and Museology in collaboration with the Government Museum, Chennai. The Madras University Archaeology Department has introduced a subject namely applied archaeology in the postgraduate level in which museology is taught to the archaeology students. Government Mannar College, Pudukkottai has introduced museology in the undergraduate level. Loyola College, Chennai has introduced museology under the name-applied history in the postgraduate level.

Museums as Research Institutions

The Prince of Wales Museum, Mumabi was the first museum, which was recognised by the University of Mumbai for conducting research leading to Ph.D. The Allahabad Museum was recognised as a research institution by the Allahabad University. The State Museum, Lucknow was recognised by the Kanpur University as a research institution in 1971 for conducting

research in archaeology and art. The National Museum, New Delhi being a deemed University conducts research leading to Ph.D. In 1997 the Government Museum, Chennai was recognised by the University of Madras as a research institution to conduct research leading to Ph.D. Degree in anthropology and chemical conservation. There is a proposal to start P. G. course on museology in the Government Museum, Chennai itself under Madras University. The museology courses offered in India mainly pre-service. Of course various in-service training courses with different durations are also available. These range from two-year post-graduate degree to six weekly certificate course. Duration also is varied. Because of these and the difference in the subject of the museum, personnel and authorities, there is considerable ambiguity about the subject. All these courses are intended to train the curatorial staff.

Syllabus

The ICOM syllabus for museum studies includes both museology and museography. The various subjects included are:

- (i) Professional ethics,
- (ii) Public and its needs,
- (iii) General programming,
- (iv) Labour problems
- (v) Evaluation of performance and statistics
- (vi) Forgeries
- (vii) Record of data concerning the treatment of collections, etc.

The Proposed Subjects of Museum Studies

Museum studies include museology and museography. Training may be provided on compulsory subjects as well as optional subjects.

Compulsory Subjects

1. History of Museums

- (i) History of museums and like institutions from time immemorial both in India and abroad
- (ii) Development of museums
- (iii) Types of museum administration wise and nature wise.

2. Museum Management

- (i) Administrative control over museums
- (ii) Museum administration
- (iii) Laws connected with museums
- (iv) Public relations
- (v) Publicity and press reporting

3. Museum Security

4. Labour Problems

5. Museum Techniques

- (i) Museum architecture
- (ii) Museum collection
- (iii) Museum documentation
- (iv) Museum environment, presentation and exhibition
- (v) Transportation and insurance
- (vi) Presentation policy

6. Museum Education, Research and Publications

- (i) Visitor services
- (ii) Guide services
- (iii) Training programmes
- (iv) Cultural activities and competitions
- (v) Research
- (vi) Publication
- (vii) Museum marketing

7. Chemical Conservation

- (i) Environment of the museum objects
- (ii) Factors affecting museum objects
- (iii) Classification of museum objects
- (iv) General methods of conservation
- (v) Care in storage and display
- (vi) Care in transportation

8. Dissertation

One of the following optional subjects:

- 1. Art and archaeology
- 2. Anthropology and ethnography
- 3. Natural science
- 4. Science and technology
- 5. Agriculture and related specialisation
- 6. Engineering
- 7. Personalities

**DEPARTMENT OF MUSEOLOGY, FACULTY OF FINE ARTS
M.S.UNIVERSITY OF BARODA, BARODA**

The M. S. University of Baroda was pioneer in instituting museum training at the Post-graduate level in a University. Since 1952, the Department of Museology, Faculty of Fine Arts, has trained many persons who are working in different museum posts in museums in India and abroad. The training is recognised as pre-service professional qualification by the Government of India and State Governments. It helps a person in securing a job in a museum provided he possesses required academic back ground and other qualifications.

The museums, to day, have become centres of education, they are particularly devoted to the objectives of general, continuing, non-formal and visual education. Not only do we have museums of history, arts and science, but many new specialized museums are being founded such as the Museums of Mankind (Anthropology), textiles, defence, transport, health, stamps etc. As the development of a museum depends on the ability of Curatorial staff, there is a growing demand for trained museum persons. The MA (Fine) Museology course is aimed at providing suitable training for those students who have an aptitude for museum work.

**Master of Arts (Fine) Museology
Syllabus**

Candidates seeking admission to the degree of Master of Arts (Fine) Museology must have passed a bachelor's degree examination or a master's degree examination in arts or science (with subjects like history, archaeology, ancient history, anthropology, physics, chemistry, botany, zoology) or a bachelor's degree examination or a master's degree examination in various subjects as stated above will be given preference for admission to the degree course in museology. The MA (Fine) Museology course will be of two year's duration spread over 4 academic terms like other post-graduate courses. (Those who have passed their last degree examination as private candidates are not eligible for admission).

**DEPARTMENT OF MUSEOLOGY, CALCUTTA UNIVERSITY,
KOLKATA**

Two-Year M.A. / M.Sc. Degree in Museology

The Department of Museology in the University of Kolkata was founded in 1959. It is the second university in India which provides museology courses in the University level. First it provided two-year post-graduate diploma in museology. Since 1972 it provides Full-time M.A. and M.Sc. degrees for the students of humanities and natural history respectively.

Department of Museology (Museum Studies) Aligarh Muslim University (U.P.) India.
E-mail : museology_amu@indiatimes.com

The department of museology is offering courses in M.Sc. Museology, Post M.Sc. Diploma in Museology and P.G. Diploma in Museology. It undertakes research in museology at M.Phil. and Ph.D. levels.

**NATIONAL MUSEUM INSTITUTE
C/O NATIONAL MUSEUM,
JANPATH, NEW DELHI-110 011.**

**The National Museum Institute is offering museology at M.A., M.Phil
and Ph.D. levels.**

M. A. (Museology)

A. ELIGIBILITY

Essential Qualifications

- i. B. A. (Honours) or B. A. in any discipline under Humanities and social Sciences e.g., History of Art, Archaeology, Fine Arts, Anthropology or in an academic subject related museums or diploma in Museology. Candidates with post-graduate degree/ diploma in Museology or in any subject of Humanities and Social Sciences may also seek admission to this course.

Desirable

Knowledge of one classical or foreign language such as Sanskrit, Persian, German, French, Italian, Spanish, etc., is desirable.

B. Duration: 2 Years extendable to 5 years.

Teaching through semester system.(4 semesters).

C. Total Academic Requirements (in all four semester)

Courses	12
Seminars	4
Special Problems	4
Foreign Language	1
Slide Examination/Practical	4+2
Dissertation	1

(in all 160 Credit Points; details available in this Brochure)

Bibliography

1. Agrawala, V. S., *Museum Studies*, Prithvi Prakashan, Varanashi, 1978.
2. Chaturvedi, H. K., *Problems of Museology Training in India*, Studies in Museology, Baroda.
3. Ellis Barcaw, *Introduction to Museum Work*, The American Association of Museums for State and local History, Nashville, 1975.
4. *Information Brochure (1996-97)*, National Museum Institute of History of Art, Conservation and Museology, C/O National Museum, Janpath, New Delhi-110 011.
5. Motichandra, *Report of the Committee Set Up for Reviewing the Working of the Museums in India*, Government of India, 1969.
6. Rafiq Sultan and Afrizu Sultana, *Emerging Challenges for the Future of Museology in India*, *Journal of Indian Museums*, Vol. LII, 1995-96.
7. Ramana, *Future of Museology in India*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.
8. *Syllabus for Two-year M.A., M.Sc. course, Museology*, University of Kolkata, 2004.

CHAPTER XIV

CONSERVATION

All forms of direct and indirect actions aimed at increasing the life expectancy of (an) undamaged and or damaged element(s) of cultural property is termed as conservation.

All forms of direct action aimed at enhancing the message(s) carried out by (an) damaged element(s) of cultural property is termed as restoration.

There are three types of work in the museum. They are:

1. Curative Conservation
2. Preventive Conservation
3. Restoration

1. Curative Conservation

In a museum about 2% of the collection may be in need of Curative Conservation. When a unique piece is actively damaged, it needs curative conservation. It is an urgent and vital process to be carried out by a trained conservator/restorer.

2. Preventive Conservation

All the collection in a museum are sound, stable and some are damaged. What ever may be the condition of the objects preventive conservation is essential. A team of people in a museum may do this.

3. Restoration

Normally, about 10% of the objects in the collection of a museum are in a damaged condition. The priority of the treatment is secondary. A trained conservator-restorer may do restoration. Some objects are in need of only conservation. Some objects are only in need of restoration - There are objects, which are in need of conservation and restoration.

Museum

Museum is a non-profit making permanent institution in the services of the society and of its development and open to the public, which acquires, conserves, researches, communicate and exhibits for purposes of material evidence of man and his enjoyment.

The sources of the cultural property are varied. The objects may come through exploration, excavation, treasure-trove finds, through purchase, gifts, transfer, loan etc. Once the objects were taken care off by their own environment/owners. When they are brought to the museums, a very few members of staff manage a large number of objects. The aggression due to nature and human beings is high. In order to control the deterioration of the cultural property,

1. We must be aware of the factors of deterioration or dangers
2. The museum personnel should be competent to handle the problems and
3. The conservators-restorers and the museum staff should be good communicators.

The message from an object should be communicated to the onlookers and also should be protected.

The Curators of the collections in a museum are not much aware of the damaging factors of the objects. There are a very few cases, where objects are miraculously protected without the help of any direct or indirect action. If the conservators discuss the problems with the curators most of the objects will be better preserved.

In order to increase the life of an object, one must know the life history of the object.

The physical integrity of the object is 100% at the time of its creation. The time taken to completely disappear is called the life expectancy. For example an iron object at the time of its making has 100% physical integrity. When it completely corrodes, there is no metal core but the form of the object is maintained. Even though there is deterioration, the life expectancy is maintained further.

The history of an object which comes as a treasure-trove, excavated object, at the time of excavation it is found under a deteriorated condition. By the application of three acts, the life expectancy may be improved, reduced or will reduce at the rate at which it originally deteriorates.

Aggressions of Cultural Property

The aggressions or the deteriorating factors of an object can be natural or man made. They may be by the environment, building and staff. The natural aggressions may be lead to immediate destruction or progressive destruction.

Immediate Destruction

Immediate destruction to the cultural property may be brought about overnight by flood, fire, earthquake, biological agents, etc.

Progressive Destruction

Progressive destruction is also natural one. This is brought about by environmental pollution due to air, dust, moisture, heat, light, micro organisms, wind, salt and intrinsic factors like chemical changes with in the material, physical changes etc.

The man made aggressions are classified as public aggression and professional aggressions.

Public Aggression

The public aggression is mostly due to unawareness. They are such as vandalism, encroachment of a declared monument or site, more tourism attraction, theft, war and terrorism, urbanisation, misusing the cultural property.

Professional Aggression

The aggression due to the professional mishandling of the antiquities and cultural objects is called professional aggression. This is due to the lack of awareness, planning, training, security, control and improper execution of curative conservation, restoration or, transport, storage, exhibition, support, lighting, handling, maintenance etc.

Strategy for Conservation

For better conservation of the cultural property, a systematic strategy is to be adopted. There are seven steps for the conservation measures to be taken. They are:

1. Know the collection
2. Categorise and identify the aggressors
3. Avoid the aggressors
4. Block the aggressors
5. Check or monitor the aggressors
6. React against the aggressors
7. Communicate.

The preventive conservation measures may be taken on the above lines.

Preventive Measures

The curator in consultation with the conservation scientist must determine the degree to which a collection is to be handled and the display area and storage arrangement must be tailored to the demands made upon it.

1. Correct levels of heat and humidity: full air conditioning; improvised micro climate
2. Well planned storage areas
3. Protection from light: correct levels of light; blind and curtains
4. Use of conservation technique and materials for housing
5. Full instructions to the users of collections; that is clean hands, correct handling, no smoking, no pens or inks
6. Good surface for viewing
7. Cleanliness
8. Use of facsimiles instead of the originals

Classification of Museum Objects

Any object representing art, culture etc., preserved in a museum qualifies itself to be a museum object. They vary from one to the other due to nature, type, property etc., their vulnerability to damage and their control measures also differ.

Depending upon the type of treatment to be given to the objects they can be classified as follows:

1. Metals
2. Organic Objects
3. In-organic objects
4. Paintings

1. Metals

Metals and alloys form major portion of museum collections. They seem to be stronger but not durable. They are mostly archaeological collections and are exposed to air from ground and are found to be corroded mostly. In the ancient times objects made out of gold, silver, copper, lead, iron etc., were used and now are available in the museums, which have to be preserved for posterity. The corrosion products either should be removed or stabilised to extend the life expectancy of the objects as well as to provide maximum message from the objects.

Organic Objects

Materials derived from living organisms such as plants, animals etc., are called organic objects. Textiles, ropes, paper, palm leaves, wooden objects, leather, feather, bone, ivory, etc., are some of the examples. Organic objects are the weakest of all types of museum materials. A bad environment will very easily damage the objects. Therefore it is essential to give more attention towards these types of objects.

In-organic Objects

The objects, which are not organic, are called in-organic objects. Mostly they are earthen matters. They include stone objects, terracotta objects, glass objects, beads, stone implements, etc. They are composite in nature and are durable when compared to the other types of objects. Due to the long burial in the earth most of them weathered, absorbed salts, crumbled, and many have survived the ages.

Paintings

Paintings are complex in nature. There are different types of paintings. They are:

Cave paintings, wall paintings, oil paintings, miniatures etc. Whatever may be the medium, type, and variety, the paintings are multi layered and therefore, they require special study.

Atmospheric Factors Affecting Museum Objects

Atmosphere plays a very important role in the deterioration of museum objects. Atmosphere consists of light, heat, pollutants, oxides of sulphur, nitrogen and carbon, ozone, etc.

Light

Light is a form of energy, which can change colours and bring about deterioration on the surface of delicate objects such as paintings, drawings, textiles and other organic objects. Light brings down the strength of the objects. The light can be divided into three divisions. They are ultra violet radiation (300-400 nm), visible radiation (400-700 nm) and infra red radiation (700 nm and above). The light of wavelength up to (500 nm) brings about degradation on materials by photochemical reaction.

Heat

Heat is one of the factors, which affects the museum objects. Low temperature avoids the biological growth on museum objects. High temperature makes the objects to disfigure and increase the speed of chemical reaction. Textiles, paper, wood, etc. very easily get charred due to high temperature. The ideal condition of temperature will be 20 to 22°C.

Humidity

Humidity is nothing but the moisture present in air. This is measured in terms of relative humidity (RH). The high relative humidity will make the organic objects to swell there by encouraging biological activity and inorganic objects to absorb moisture into the pores present in the body along with salts and harmful salts. When the relative humidity is low, organic objects lose water and get shrunk. In the case of inorganic materials, the absorbed salts get crystallised and the surface scaling takes place. In general for any type of museum objects the RH should be in between 45% to 60%.

Air Pollution

The pollution due to the pollutants present in the air is called air pollution. The various pollutants, which are dangerous for the museum and archaeological objects, are oxides of carbon, sulphur, nitrogen, ozone, salt spray and various organic gases. The various oxides combine with the moisture present in air and form acidic substances, which affect the objects at large. The salt sprays are absorbed by the stones, which result in the breaking of the surface layer.

Sound and Vibration

In the case of very weak archaeological objects such as unbaked terracotta objects, highly mineralised metallic objects crumble due to the vibration, sound and vehicular traffic.

Bio Deterioration

The Deterioration is brought out by biological agents such as fungi, moss, dry rot, liverworts, lichen, plants, bushes (botanical), insects, rodents, birds, animals (zoological) etc. Almost all types of museum objects and archaeological objects are affected by these agencies. These agencies will bring about some symptoms on the objects. Stains, discolouration, disfigurement, pitting, tunnelling, firbillization, powder formation, development of odour, changes in the

physical properties are some of the symptoms, which will be seen on the objects when they are affected by the organisms.

Control Measures for Bio-deterioration

All organic objects when brought to the museum should be fumigated in a fumigation chamber. Thymol, paradichlorobenzene, carbon di sulphide, carbon tetra chloride, methyl bromide, ethyl bromide, ethoxide are some of the common fumigants used.

General Treatment for Insects

There are two main methods of treatment for the insects in the museums. They are:

1. Fumigation with fumigants or insect repellents and
2. Dusting, spraying or fogging of the insecticides.

Fumigation

Fumigation is nothing but keeping the insect infested objects in an airtight chamber where volatile chemical like thymol, paradichlorobenzene, carbon disulphide, methyl bromide, ethyl bromide, carbon tetrachloride or naphthalene is kept. In case the archival materials are affected by insects etc., it is better to fumigate with in a giant fumigation chamber under vacuum. The insect prone museum objects such as textiles, paper, leather etc., should be fumigated before the monsoon starts.

Application of Chemicals

When the application of insecticides either by spraying, dusting or brushing, care should be taken to avoid the health hazards. 5% solution of DDT, BHC, 0.01% solution of paranitrophenol, mercuric chloride etc., is suitable for the eradication of insects.

General Treatment for Cryptogrammic Plants

Bacteria, fungi, algae, lichen, liverworts and mosses constitute the cryptogrammic plants, which affect museum materials. Among these, only fungi generally pose very high threat to museum objects. Organic objects like wood, paper, textiles, leather, protinacious materials, paintings are damaged on account of the mould growth. Since moisture is the very important requirement for the growth of bacteria and fungi, humidity control is the best preventive measure. Air conditioning will serve this purpose but it will be out of the reach of most of the museums. Even if the air conditioning is done, it should be throughout the day and night.

Insect Trapping in Museums

Insect trapping is getting importance in the pest control in museums. Insect traps in general consist of the two components an attractant and the killing or retention part. There are various systems available and all systems can not be used in the museums. The best system is sticky type of insect traps. There are two simple traps. One is the window type and the other is the prism type. In both the systems the insects attracted to the traps are stuck to the sticky surface. Knowing the type of the insect suitable insecticide or insect repellents or fumigants can be used.

Non-toxic Pest Control in Museums

The toxicity of the chemicals used in the eradication of insects affects the persons who handles them and also the visitors to the museum. There fore in the recent days non-toxic methods of pest control have find place in the museums. Low nitrogen atmosphere is created to the objects, which kills the insects and also saves the objects of organic nature. Integrated pest control is very important in museums.

Freeze Drying

Freeze-drying is a very good method of treating the organic objects to save them from the biological agents. The organic objects are covered with polythene covers and deep-frozen at a temperature of about -22 °C. This method keeps off all the biological agents from the museum and archaeological objects of organic nature. In the European countries this method is in vogue. The objects when treated in this way keep of the spores also from the objects. Once a year the objects can go for deep freezing.

Examination of Objects

In order to decide on the strategy of conservation, the objects, which are affected, should be examined visually, instrumentally and chemically. Using a magnifier the condition of the objects should be studied. The surface should be watched for the presence of deposits. The alteration products may be studied by chemical analysis. If necessary instrumental analyses like X-ray diffraction, XRF studies may also be done. After finding out the nature of defects, the type of conservation can be effected.

METALS

Conservation of excavated or once conserved objects may be considered as one of the most important off shoots of archaeological chemistry. Metallic antiquities constitute a heterogeneous though well-defined group of materials, almost all is prone to corrosion of one type or the other. Unless one knows about the corrosion principle it is not possible to control the corrosion factors. The corrosion has to attract the immediate attention of the conservator or the conservation chemist.

Gold Objects

Gold is a noble metal. If gold is pure, it does not corrode even if gold objects are found buried under the earth for a long time. Red gold (gold and copper), white gold (gold and silver), and electrum (silver and gold) are some of the important alloys of gold. When such alloyed objects are exposed to the corrosive atmosphere the baser metals corrode first.

Gold objects, which are in contact with copper appears greenish blue because of the corrosion products of copper present in it. Gold objects, which are buried in the lime deposits, are found to be covered with calcareous materials. Such objects are immersed in a 1% solution of nitric acid, which removes the calcareous materials.

Silver Objects

Silver is a noble metal. It corrodes when it is buried or exposed to an unfavourable environment. Silver objects get tarnished in an environment of hydrogen sulphide. Some times lavender coloured deposits are formed in a chloride atmosphere. Silver objects are treated with a 10% solution of formic acid to remove the black deposits and then in dilute ammonia solution to remove the white deposits. Then the silver objects are washed well in distilled water and dried.

Lead Objects

Lead objects very easily corrode forming a thin film of lead oxide, which is a protective coating. In a very bad environment lead objects bulge out to form the lead carbonate. They are very fragile and care should be taken to clean them. Lead objects are treated with a 5% solution of acetic acid and washed well to remove all the acid. Contrarily lead objects may be cleaned with the help of Amberlite IR 120, an ion exchange resin to clean the corrosion products without any damage to the objects.

Iron Objects

Iron objects corrode easily, giving rise to unsightly rust that cause swelling and deformation of the decaying objects. Many iron objects buried under the ground are heavily mineralised leaving behind only a thin core of iron. Chlorides are very dangerous for the iron objects and therefore the chloride corrosion product should be removed completely.

General Principles of Conservation of Metallic Objects

The corrosion products of the metallic objects can be removed in the following ways:

1. Removal of the corrosion products both physically and chemically
2. Using electrolytic and electrochemical means
3. Stabilisation of the corrosion products

Removal of Corrosion Products

1. Physical Methods

The corroded objects may be cleaned using tools, vibro-tools, ultra sonic cleaners and other methods like laser beam. This is a harmless method, as we do not include any chemical in to the metallic objects.

2. Chemical Method

The corrosion products of the metallic objects can be removed by dissolving them by some of the chemical solutions.

3. Stabilisation of Corrosion Products

The corrosion products of the metals can be stabilised with the help of some chemicals. This procedure will not allow the corrosion process to proceed forward. By this, the bronze diseased objects can be stabilised with the help of a 2% solution of benzotriazole in rectified spirit.

4. Intensive Washing

Washing is a very important aspect in the conservation of metallic objects. The metallic objects are immersed in distilled water and heated slowly and cooled. This process is repeated till all the chlorides are removed from the metallic objects.

STONE OBJECTS

Rocks and minerals are in abundant and consist of silicate units. The main silicates are of sodium, calcium, magnesium, and aluminium. There are various rocks in the earth's crust. Based on the formation of rocks, they are classified as follows:

1. Igneous Rocks
2. Sedimentary Rocks.
3. Metamorphic Rocks

Igneous Rocks

Those rocks, which are formed by the cooling of the volcanic lava, are called igneous rocks. Granite, basalt are some of the examples.

Sedimentary Rocks

Sedimentary rocks are those, which were formed by the gradual sedimentation of layers of sand and other inert materials brought by rivers and streams and deposited at the beds of lakes and ponds. Sandstone, limestone, shale are some of the examples.

Metamorphic Rocks

Metamorphic rocks are those rocks by the metamorphosis of either the igneous or sedimentary rocks due to pressure or heat or some other geological change. Marble, schist, gneiss, quartz, slate are some of the examples of the metamorphic rocks.

Based on the chemical properties they can be classified as follows:

1. Siliceous Rocks
2. Argillaceous Rocks and
3. Calcareous Rocks.

Siliceous Rocks

Rocks, which contain maximum amount of silica, are called siliceous rocks. E.g. Granite, quartzite.

Argillaceous Rocks

Rocks, which contain argil or clay predominantly, are called argillaceous rocks. E.g. Laterites, slates.

Calcareous Rocks

Those rocks, which contain calcium carbonate predominantly, are called calcareous rocks. E.g. Limestone, marble.

Deterioration of Stone Objects

Stone objects deteriorate continuously as a result of physical, chemical and biological processes. The durability of stones is mainly dependent on its internal structure and petrographic composition and also to the environment to which they are exposed. The various types of deterioration are:

1. Decay Due to Quarrying
2. Decay Due to Dampness
3. Decay Due to Soluble Salts
4. Decay Due to Temperature Changes
5. Decay Due to Atmospheric Pollution
6. Decay Due to Growth of Moss and Lichen
7. Decay Due to Growth of Vegetation etc.

Decay Due to Quarrying

The decay in the stone objects can be due to the method of quarrying or dressing. The micro-cracks developed will further deteriorate the stone objects.

Decay Due to Dampness

Dampness is one of the agents of the decay in stones. The moisture absorbed will help the stone to take in the salts, which result in surface damage of the stone objects.

Decay Due to Soluble Salts

The salt absorption by the stone objects creates surface crumbling of the objects due to the crystallisation internally.

Decay Due to Temperature Changes

Rapid changes of heat due to sun and the sudden rain cause strain between the outer and inner portion of the rocks or stones, which results in breaking of the specimens.

Decay Due to Atmospheric Pollution

Atmosphere consists of pollutants such as carbon di oxide, sulphur dioxide, nitrogen oxides, hydrogen chloride, hydrogen fluoride, hydrogen sulphide, aerosol, suspended particulate matter etc., which get dissolved in the moisture and are absorbed by stone objects once again resulting in the crystallisation thereby in the surface crumbling.

Decay Due to Moss and Lichen

The decay due to moss and lichen etc., is caused only in the case of stone objects exposed to rain. Acids generated by moss and lichens not only damage carbonaceous stones but will also attack silica and cause damage on the surface.

Deterioration Due to Growth of Vegetation

The growth of vegetation causes only in the case of structures and exposed stone monuments. The vegetation growth withdraw water and retains the moisture inside the structure there by damage is created to the stone monuments.

Conservation of Stone Objects

Most of the deterioration on stone objects is due to water. This is aggravated due to the presence of dirt, salts etc. The unwanted damaging accretions should be removed and the surface should be protected from the entry of moisture into the stone objects.

Removal of Dirt

Stone objects such as sculptures often accumulate dust, dirt, stain, grease, smoke, soot etc. Dust is dusted off. Dirt, oil, grease, soot etc., are removed by the application of a 1% solution of detergent solution followed by brushing and washing. Wishab, a type of pencil eraser, can be used to remove the accretions.

Removal of Soluble Salts

The absorbed salts into the stone objects should be removed out of the object. Soluble salt from the small stone objects gets removed by immersing the objects in salt free water. A poultice like paper pulp, sepiolite can be used to remove the absorbed salts by applying it over the objects continuously.

Removal of Biological Accretions

Deposits of moss or lichen or algae not only make the stone surface to appear black but also produce pits in the surface of the stone objects, there by weakening the structure. Now-a-days in the European countries the black deposits are removed by laser beam. Sand blasting is also done in Indian context but this removes the surface also.

Consolidation of Stone Objects

What ever may the chemical treatment applied to remove the accretions and salts from the stone objects, the surface should be washed very well with distilled or deionised water. The surface should be protected with a 2% solution of poly vinyl acetate in acetone twice in two different directions.

Consolidation of weak stone objects can be done with the help of acrylic resins like Perspex, polyester, epoxy resins like poly vinyl acetate, poly vinyl chloride, Araldite. They are some of the consolidants, which are in use. Recently Paraloid B72 is very commonly in use. Organosilanes are largely used in the consolidation of stone objects.



Dowelling of Stone Image

Restoration of Stone objects

Restoration is often necessary for reasons of safety of the stone object and is carried out using modern materials in a manner sympathetic to the existing structure, but not necessarily identical with it. Dowelling can be done in the case of broken stone objects by joining the pieces by means of stainless steel headless rods. The stone objects should never be in contact with the ground. A moisture barrier should be kept in between the masonry structure and the objects.

CERAMICS

Ceramics is the general term for an object made out of clay and burnt like pottery, porcelain and earthenware. They mainly consist of alumina and silica.

Deterioration of Ceramics

Most of the ceramic objects are excavated and are saturated with the salts of the soil, if they are unglazed and broken. Rough and unfired clay objects as well as weathered objects easily get accumulated with dust and are difficult to remove the dust. They are vulnerable to abrasion and scratches.

Conservation Methods

Salt affected baked objects may be cleaned with salt free water. If they are very fragile they should be consolidated with the help of consolidants. For salt removal the methods that are used in the case of stones may also be used.

Mending of Ceramics

The broken ceramic pieces should be numbered and joined together. The broken edges should be cleaned with a soft brush and then with rectified spirit. The acrylic resin should be applied at the broken edges and joined. The joints should be filled with filler like acrylic resin and matched with acrylic colours.

GLASS AND GLAZES

Glass is a super cooled liquid. Heating silica, soda, and lime makes glass. Depending upon the constituents of the glass, they are differently called. Porous ceramics were glazes for providing smoothness to the objects. Depending upon the use of different coloured chemicals the glasses took different colours.

Deterioration in Glass

Dry climate is good for the preservation of glass and glazes. Glass may lose its transparency and become cloudy or crizzled, which is commonly called as Glass Disease. Glass is affected by alkaline water on the glass. If the affected glass is not cleaned, the glass completely gets damaged.

Conservation of Glass

Avoiding contact of water with glass objects can stop the deterioration of glass. The soluble alkali salts are washed with water, dried with rectified spirit, acetone or ether and stored in low humidity cases keeping silica gel.

Ethnographic Materials

Ethnographic materials are nothing but the materials used by the mankind. Ethnographic objects include organic materials like leather, textiles, bark, wood, bamboo materials, leaves; inorganic materials like potteries, weapons, stone objects, beads, clay objects etc.

Decay of Ethnographic Materials

Ethnographic materials are mostly organic in nature. They are affected mostly by climatic variations. They are fragile and mostly coloured. They are affected by heat, moisture, light etc. The textiles and the coloured materials fade and disintegrate. Objects undergo damage due to the biological action. The acids produced by the moulds permanently disfigure the objects. Musical instruments, which are mostly organic in nature, are very badly affected during the rainy season.

Conservation Measures

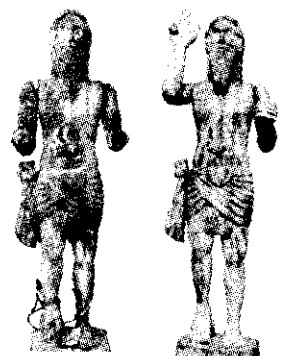
Air-conditioning the gallery and the storage will protect the ethnographic objects. It is better to keep the light with low intensity, say about 50 lux. The temperature also can be maintained at 20 to 22 °C. Moisture should be avoided on any account. If the moisture is controlled we can avoid most of the drawbacks. The storage may be fumigated with thymol and paradichlorobenzene to avoid mould growth. Insecticides can be applied in the floor area to control the insects.

WOODEN OBJECTS

Wood is derived from trees. Wood contains two portions viz. Heartwood and sapwood. The heartwood is durable and contains some chemicals, which avoid insects. The sapwood is very soft and vulnerable to the insect attack. In the museums wooden objects are in plenty. They include woodcarvings, drums, structures, implements, household articles, folk and tribal objects.

Deterioration of Wooden Objects

As wooden objects are organic in nature, they deteriorate due to the environmental conditions both biologically and mechanically. Heat changes make the wood to warp or bend. Dry rot, a type of fungi, affects wood seriously. Termite attack is very dangerous if not inspected often. Soot, dirt, oil accretions affect the woodcarvings very much.



Wooden Image
before and after Restoration

Conservation Measures

Wooden objects should be segregated from the earth and wall if they are positioned so. Variation in the climatic condition should be avoided. Regular dusting should be done to avoid the dust becoming dirt. The wooden objects will not absorb moisture if coated with water repellent like poly vinyl acetate. Large number of objects can go for freeze drying to avoid the biological damage in the objects. Galleries, which are displayed with woodcarvings should be vacuum cleaned. The storage area should be treated for the insects and fungi.

PAPER BASED OBJECTS

Paper is a word derived from the word papyrus. The major constituent of paper is cellulose. Paper is made out of rags, wood, plant fibres etc. Paper is made for writing or drawing purposes by the application of sizing materials, which are proteinaceous in nature.

Deterioration of Paper

There are two factors acting for the deterioration of paper. They are the internal factors such as acidity, contents of paper, etc. The other is the environmental factors such as moisture, suspended particulate matter, oxides of carbon, sulphur and nitrogen, bio-deterioration, mishandling etc.

Conservation Measures

Acidity in paper is gained by the presence of moisture. This makes the paper brown and brittle in nature. Acidity can be removed but we cannot bring back the strength of the paper by the removal of acidity. Acidity in paper can be removed by keeping the paper in a chamber where ammonia vapour is present. On the contrary, acidity affected paper can be wet de-acidified with the help of calcium bicarbonate solution. Some papers, which are very badly affected by acidity, can be bleached with the help of chloramine-T in rectified spirit. Paper materials should be well preserved by reducing the light intensity and moisture. Since paper materials are organic in nature all precautionary measures should be adopted to protect them from biological agents.

PALM-LEAF MANUSCRIPTS

Palm trees grow more in the tropical countries and they were used for record purposes in the ancient times. Different types of leaves were in use for writing purposes in our country also. Palm leaves were processed before they were used for this purpose. Tender palm leaves were cut, dried under shade, boiled with turmeric solution and cut to size and were used to write records. Palm leaves mainly consist of cellulose material.

Deterioration of Palm-leaf Manuscripts

Since palm-leaf manuscripts are organic in nature, they are prone to biological deterioration. Humidity, heat, insects, micro organisms etc., affect these type of museum objects. Acidity also affects them. Fungi, woodborer beetles affect very seriously the palm-leaf manuscripts. Drying of the manuscripts make them brittle as well as to twist.

Conservation Measures

Some times the palm-leaf manuscripts are affected by insects and are stuck together. It will be very difficult to separate the leaves. When the affected palm leaves are boiled in steam bath the leaves get separated. Leaves are cleaned, dried and bundled together so that they will be plain. Normally the palm-leaf manuscripts used to be covered with soot and dirt. The accretions should be cleaned with the help of rectified spirit. In order to make the incised matter legible citronella oil mixed with rectified spirit and lampblack may be coated. This restores the flexibility to the palm leaves and the incised portions look legible. The bundles are protected by two teakwood planks and are arranged in the racks. It is always better to control the environment. Regular fumigation with thymol and paradichlorobenzene is carried out to avoid the bio-deterioration of the palm leaves.

TEXTILES

Cloth is made out of natural and manmade fibres. Fibres from plants, animals, insects, and synthetic materials are some of the examples. After dyes were invented the cloth was dyed. Thus manufactured textiles are found large in number in museums.

Deterioration of Textiles

Textiles are mostly organic in nature. They get affected in excess moisture and heat. Biological agents affect much the textiles. Termites eat away textiles when suitable environment exists. Wool moth attack woollen materials. Acidity affects the textiles very much. In certain cases the dye itself eats away the textiles.

Conservation Measures

Highly acidic textiles can be de-acidified by fumigating with ammonia. In case the stain is found along with acidity, the textile piece is kept in between two chiffon cloths, rested over a glass plate and washed in salt free water. 1% solution of Labolene is applied and brushed. Then the textile is washed well in running water. This can be done only in the case of textiles with fast coloured dyes. Providing a support to the textile may strengthen weak textiles. Darning can also do the strengthening. In case there are loss of textiles, similar cloth may be used to fix in those affected spots with the help of 5% solution of poly vinyl acetate. It is advisable to maintain 45-60% RH and 20-22 °C through out the day.

LEATHER OBJECTS

Leather is nothing but cured skin, which is dehaired, defatted, made non-putrient and impervious to water. Skin is a net work of protein fibres chiefly collagen. Tanning is a method of processing skin to produce leather.

Deterioration of Leather

Leather is an organic material. High humidity, low humidity and temperature affect very much leather objects. High humidity encourages moulds growth and other biological activities.

Low humidity dehydrates the leather objects there by leather gets hardened. Dust and pollutants make leather to receive acidity there by objects become brittle.

Conservation Measures

The environment should be controlled where the leather objects are displayed or stored. Leather objects should be fumigated with thymol or para dichloro benzene to avoid the biological activity in the objects. Hardened leather objects may be made flexible by the application of 2% castor oil in rectified spirit. Fungal affected leather objects are fumigated and cleaned with a vacuum cleaner and treated with 0.1 para nitro phenol in rectified spirit. Light intensity should be low in the gallery. In the storage the leather objects should be kept covered to avoid dust.

FEATHER OBJECTS

Feather is a part of birds and consists of protein. It is similar to hair but with a different molecular structure. Feathers are not flexible like hair; but will break if folded.

Deterioration of Feather

Feathers are inherently quite stable, but gradually they become brittle over a period of years. They become brittle below 40% RH and mould develops when the RH is over 65 %. Feathers trap dust and the dirt soils the appearance also provides an additional food source for insects and moulds. Insects attack feathers at larval stage.

Conservation Measures

The dirt may be removed by brushing with soft brush using rectified spirit. They can be fumigated by with para dichloro benzene before they are added to the collection. Open storage should be avoided. Light up to 100 lux only should be allowed. Control of climate is essential for the protection of feather objects.

BONE AND IVORY OBJECTS

Bone and ivory are derived from animals. The main constituents of bone and ivory are calcium phosphate associated with carbonate and fluoride and the organic constituent is ossein. Both have the cellular structure. Ivory has a hard and dense tissue known as dentine, which results in striations, which may be seen radiating from the centre of the tusk.

Deterioration of Bone and Ivory

Bone and ivory are anisotropic having directional properties and for this reason they are easily warped upon exposure to heat and damp. They are decomposed by the prolonged action of water due to the hydrolysis of Ossein. Acids also disintegrate them. Being porous they easily go stained. They loose their natural colour due to the long exposure to light.

Conservation of Bone and Ivory Objects

Accumulated dirt, oil and grease can be removed by brushing with 1% solution of Labolene in

rectified spirit. The washings are removed by blotting paper. The absorbed soluble salts may be removed by immersing the objects in distilled water for about 5 seconds and repeated a number of times with fresh distilled water. Then the objects are washed in 95% rectified spirit twice and dried in air. Weak objects may be strengthened by 2% poly vinyl acetate in acetone. If the object is very fragile, it may be vacuum impregnated in 5% solution of poly vinyl acetate in acetone. In the case of restoration nitro cellulose adhesives may be used.

LACQUERWARE

Lacquering is a very good technique of finishing an art object. There are two types of lacs. The resin after processing results in the lac of commerce i.e. Shellac.

Deterioration in Lacquerware

Moisture affects lacquerware. The objects on contact with water become chalky or white or opaque. Very low humidity makes the lacquerware brittle and the lacquered portions may be chipped off. They are easily abraded.

Conservation Measures

Lacquerware should not be cleaned with water or an aqueous solution, as they become opaque or white with water. As they are fragile, shocks and abrasion should be avoided. Soft brushes should be used for cleaning. They should be wrapped in soft tissue paper and kept in padded boxes or shelves.

RUBBER OBJECTS

Rubber is a natural product, which is processed from latex from rubber tree. Rubber is largely composed of unsaturated polymers like poly isoprene, poly butadiene, polystyrene, and co-butadiene.

Deterioration of Rubber

Since rubber is composed of unsaturated chemical compounds, it is easily oxidised. Due to the rubber products either get hardened or softened. Attack by ozone causes embrittlement and subsequent cracking of the rubber objects.

Conservation Measures

It is safer to cover the rubber objects or coat with a protective film to cut of the reaction with oxygen or ozone. It is also advisable to keep the objects in oxygen free environment. We may keep inside the cases where rubber objects are kept; we may keep oxygen scavengers like *Ageless*.

PAINTINGS

Type of Paintings

There are many type of paintings preserved in museums and galleries. What ever may be the type of painting their structure is more or less similar. They have multi-layered structure. They are the support, the ground, the pigment and the protective layer like varnish. Wall paintings, canvas paintings, panel paintings, paintings on glass, ivory, cardboard, mica etc., are some to name.

Wall Paintings

The paintings executed on wall are called wall paintings or mural paintings (Muir = wall). If the painting is executed on wet wall it is called true *fresco (buono)* painting. If it is executed on a dry wall it is termed as *fresco (secco)* painting.

Flaking of paint layer, lifting up of the paint layer in the form of cups, blistering, cohesion, scroll formation, fading of the paint layers, abrasion, physical damage by mishandling and vandalism are the deterioration to the wall paintings. Dust, soot, moisture, heat, vibration, pollutants, cracks in the structure; salt action, biological agents, seepage and leakage of water are the various causes for the deterioration of wall paintings.

Conservation of Wall Paintings

The accumulated dust may be gently brushed off. The cracks may be set right. Leakage and seepage may be avoided. The conservation can only be done with an expert. Physical barriers may be provided in the monument or galleries to avoid people going near the paintings and touching them.

Paintings on Canvas

Cotton canvas or linen canvas had been used as the support for the canvas paintings. The primed canvas is used for painting the subject on it. The pigment is in oil medium. After drying, the pigments are covered with varnish.

The deterioration of the painting may occur either in the canvas, ground, pigment or varnish layer. Canvas may be affected by acidity and get brown colour and become dry and brittle. There may be separation between the support and the ground or ground and pigment. There may be tear of canvas, cracking of the painted surface, loss of pigments etc.

If the canvas is bad, the painting may be relined with fresh canvas of comparable thickness using reversible adhesives like Paraloid B72, wax and resin mixture. The loss of pigments may be replaced by inpainting with acrylic colours. Dust, moisture, light etc., affect the paintings. There fore it is better to air-condition the gallery or storage.

Glass Paintings

In this type of paintings the support and the ground is only glass. The painting is done in the reverse manner. After painting is done the painted surface is covered with a paint to avoid the scratching. The painting is mounted with the unpainted side foremost so that the painting is seen through the glass.

Deterioration to the Glass Paintings

Since the painting is done on a single glass simple physical force may result in breaking. The painted portions are abraded, eaten by insects. The insects eat the gilt papers. Cracking in the paint layer occurs. Due to the alkaline nature, glass disease also occurs at times.

Conservation Measures

When the glass is broken, two supports both in the front and back are to be provided. The broken pieces are aligned together and pasted with a 5% solution of poly vinyl acetate. The retouching of the flaked off portion may be done with tempera colours. The loose papers may be pasted with Paraloid B72.

Panel Paintings

Panel paintings have wooden support. Tanjore panel paintings have jack tree planks pasted with cloth and primed with *sukkan* paste. In this type of painting, ornaments are decorated with gem or glass or gold rakes.

Since this type of paintings is composite in nature, the problems are also multiple. The wooden joints get loosened, cohesion between the layers, the added materials get lost. Stain formation due to leakage, fading of paints etc., are noticed.



Thanjavur Panel Painting before and after Restoration

The loose planks are joined together after removing the painted cloth along with the cardboard if any. The lost materials are added. The flaked off portions are inpainted. If there is no glass front a new glass front is provided. The backing also provided, which will avoid the dust accumulation as well as insect attack.

Drawings, Prints and Paintings on Paper

The drawings on paper, paper prints and the paintings on paper pose a lot of problems. Here paper is the support. In the case of paintings ground is also applied.

Since paper is organic in nature, moisture and biological agents easily affect these types of art works. Acidity affects the paper and become brittle. They are easily mishandled.

Acidity affected art works may be dry fumigated with ammonia. They may be fumigated regularly for the eradication of micro-organisms. The gallery or the storage may be environmentally controlled. Light density should be within 50 lux.

Photographs

Photographs are also images on paper. The images are nothing but chemicals like silver halides. The negatives are found on glass or celluloid, or cellulose nitrate or cellulose acetate or even polyester film.

Photograph is a very complex material, having several components like support, binding medium and photosensitive image forming chemical, which may react in different ways to various factors of deterioration. The common deterioration noticed in photographs are yellowing, stains, separation of emulsion, fungal attack, insect attack, scratches, fingerprints, folds, etc.

In the negatives, due to age the emulsion becomes brittle, cracks and falls off at the slightest shock or touch. They should never be touched. Humidity should be with in 45-60% and the temperature also should be with in 20-22°C.

The Role of a Conservator in the Presentation of Museum Objects

Presentation may be defined as the systematic observation and presentation of the observations in the communicable forms. However the concept of presentation of objects in a museum or gallery has undergone change over a period of time. Earlier, just exhibiting an object in a given space was acceptable. It is not possible any more restricted to cupboards / cases in galleries. This change in concept poses a great challenge for conservators, as they have to play a pivotal role in the presentation of museum objects. The conservators are involved in every stage of presentation, right from acquisition to the storage, display, transportation etc.

Exhibitions and Conservation Measures

Museum exists to preserve the art objects in its collection through proper exhibitions to understand and enjoy it. In the exhibition gallery certain guidelines should be practised in order to keep the objects in a better state for posterity. In order to take care of exhibited museum objects, one must know about the supporting materials used in display and the environmental factors.

Guidelines for Supporting Materials

1. Two-dimensional objects like paintings; prints must be suspended or fixed to walls or display panels with proper supports like nylon threads or mural plates. In the European museums and galleries the paintings are suspended using an adjustable metal string.
2. Three-dimensional objects like bronze sculptures; stone sculptures should be displayed on pedestals, properly secured or within showcases having proper support. The supporting materials used to secure the objects should neither mask, soil nor chemically react upon contact.

3. Pins and supporting wires should be standard stainless steel and covered with nylon or polythene tubing. Nylon filament is also good, provided it does not cut into or stains the object and is strong enough.
4. While stapling, staples should never be used in contact with objects, but should be covered over with insulating materials.
5. When mounts are used, it is better to use Perspex, Plexiglas.
6. Textiles, costumes etc., should be supported with padded hangers.
7. Showcases for museum objects should be constructed using non-reactive materials, adhesives and coatings, so as not to cause deterioration during long-term exposure. Raw plywood surfaces are to be avoided because of possible formaldehyde emission.

Environmental Guidelines in Exhibitions

1. The exhibition area must be environmentally controlled and free from all construction, destruction or related activity. Freshly painted area should be allowed to dry for at least two days under active air circulation. There should be at least a minimum time gap of two months between plastering of walls and exhibition.
2. The exhibition must be limited and controlled access with provision for daytime security by trained persons and at other times is furnished with intrusion, smoke and fire detectors.
3. Works of art and other objects should not be exposed to sunlight, heating, too much cooling or placed close to lamps.
4. Floor cleaners and cleaning operations should not be hazardous through flashing, chemical exposures or mechanical damage.
5. In case of renovation, repair or painting the exhibition galleries, the objects should be well covered with polythene sheets and reinforced with wooden structures all around.
6. Thermo-hygrometers should be placed in sensitive locations above the floor level to record relative humidity and temperature through out to take control measures of decay.
7. The light level for light sensitive objects should be in between 50 and 100 lux, that too, for a limited exposure.
8. Photography, movie and video work should be controlled, as too much light affects works of art.
9. It is better to limit on the maximum number of persons permitted at any time in the gallery depending on the exhibition space and the capacity of the air-conditioning system.
10. In-order to restrict vandalism in the exhibited area, stanchions with ropes may be provided. The security staff may be instructed to act vigilantly.
11. Researchers and visitors who take notes may be asked to use only pencils, which will avoid marking on objects either by forgetfully or accidentally.

There may be some more problems to be tackled by the Curators or persons in-charge of collections depending upon the need.

Requirements for a Conservation Laboratory in a Small Museum

Conservation is inevitable for a museum whether small or big. Depending upon the size of the museum the conservation laboratory may be designed. There is no museum in the European countries with out a conservation laboratory. The strength of the conservation staff is also in

commensurate with the number of objects in the collection of the museum. The staff, area, facilities, etc., of the conservation laboratory is detailed here.

Staff

Trained staff is very essential for the conservation laboratory. With out staff no conservation work can be carried out. In some of the European museums the conservation work is entrusted to the private restorers or conservators and the conservators of the museum supervise the work. Either a museum should have at least one person for tackling the conservation problems or one of the staff should be trained and should be entrusted with the conservation work along with his work. But to my opinion at least two persons should be employed for conservation work in a museum. But in European Museums, 10% of the total staff work in the conservation laboratory.

Area of the Laboratory

In the beginning for a small museum one room will be sufficient to carry out the conservation work. It will be better to have at least two rooms of size 10X10 feet for this purpose. Some of the museums have a conservation laboratory in the storage too. E.g. Victoria and Albert Museum, London. The department of State Archaeology, Government of Tamil Nadu has a small area for the laboratory.

Facilities Required

Facilities like furniture, equipment, chemicals, tools, etc., are required to take up the conservation work. It is essential to have at least the important chemicals and tools to carry out the work.

1. Furniture

Furniture for the staff such as workbench, cupboards, chair, shelves, water tap, sink, with electrical installation is essential. Depending upon the number of staff the same can be increased.

2. Equipment

Equipment is very essential to carry out the conservation work. Vacuum cleaner is one of the important equipment in any museum to undertake preventive conservation. A distilled water plant is much needed, as distilled water is essential for the cleaning of the objects in case needed. Air drier is required for drying. Environmental monitoring equipment like thermometer, hair hygrometer, and light meter are essential for the environmental monitoring.

3. Tools

Conservation and restoration tools must be acquired for the laboratory. Simple tools like scalpel, chisel, hammer, knives, saw, nylon brushes, metal brushes, hair brushes, glass plates, trays, weighing balance, screw gauge, Vernier callipers, measuring cylinders, bottles of different

varieties, beakers, test tubes, burners, lamps, stands, tongs, pliers, metal cutters, buckets, mugs, water tubs, gloves, polythene sheets, supporting materials for conservation work etc.

4. Chemicals

Chemicals and other conservation and restoration materials are highly essential for the conservation laboratory. Now a days preventive conservation is given importance. Use of many chemicals is avoided. Chemicals such as fumigants, insecticides, pesticides, desiccants, consolidants, adhesives, solvents to take up cleaning work, detergents and acids and alkalis.

a. Fumigants

Chemicals, which give out fumes, are called fumigants. Thymol, para dichloro benzene, naphthalene, nifol, are some of the essential fumigants a conservation laboratory must have fumigation purposes.

b. Insecticides

Chemicals, which kill the insects, are insecticides. Benzene hexa chloride, DDT, mercuric chloride, arsenic trioxide, etc., are some of the important insecticides used in museums. Chloropyriphos is used now-a-days mainly as an insecticide.

c. Pesticides

Pesticides are chemicals, which either kill or drive away the pests. The periodical pest control will drive away the pests from the museums. Chloro pyriphos is a common pesticide, which is used in the museums. It has come out in the name of Durshban TC. This is both sprayed as well is injected into the wall and ground.

d. Desiccants

Desiccants are chemicals, which absorb moisture from the environment. Calcium chloride, silica gel are some of the desiccants used in the museums. Among them silica gel is very commonly and freely used in the museums. Silica gel absorbs moisture from the environment and avoids accompanying defects.

e. Consolidants

Consolidants are chemicals, which are used to consolidate the fragile museum objects. The consolidants are normally soluble in a solvent and will not react with the object but consolidate the object. Poly vinyl acetate, methyl methacrylate, silanes are some of the consolidants used for consolidating museum objects.

f. Adhesives

Adhesives play a very important role in the conservation of museum objects. The adhesives should be reversible at the same time they should not react with the objects and should not stain them. There are so many natural adhesives such as icing glue, gum Arabic, wax and

resin etc. There are also synthetic glues, which are reversible in nature. Some of such synthetic adhesives are Paraloid B72, Movilith etc.

g. Solvents

Solvents are very essential in the conservation work. There are various types of solvents. Common solvents used in the conservation laboratory are acetone, toluene, rectified spirit, di acetone alcohol etc.

h. Detergents

Detergents are soaps, which are neutral in action and they are used for cleaning the objects in a museum. Lissapol, Labolene are some of the detergents used for cleaning museum objects. Glass cleaning detergents are also available in the market for cleaning the showcase glasses. Paper pulp is required for the removal of salt from terracotta and stone objects.

i. Other Chemicals

Other than the above category of chemicals some special chemicals are also required in a conservation laboratory. The commonly used other chemicals are ammonia, turpentine, formaldehyde, Rochelle salt, sodium hydroxide, sodium carbonate, acetic acid, formic acid, nitric acid, sulphuric acid, hydrochloric acid, zinc dust etc.

All these chemicals, equipment, tools, apparatus, etc., can be purchased from any chemical and scientific company.

PRESERVATION OF ZOOLOGICAL SPECIMENS

Preservation of zoological specimens requires a special care and attention. At the death of the animals or birds the decay starts. It is essential to take necessary steps to preserve the animal body immediately after the death. It is essential that while preserving the specimens for the study purposes one should remember that the colour, form and the general appearance of the living animal or bird should be found in the preserved bodies. Zoological specimens generally preserved in a museum are such as the skeletons, parts of the living animals, eggs, nests etc.

Methods of Preservation

There are many methods of preservation of zoological specimens. They are the following:

1. Wet Preservation
2. Dry Preservation
3. Advanced Methods of Preservation such as
 - a. Plastic infiltration
 - b. Plastic embedding
 - c. Freeze drying

Wet Preservation

In the wet preservation liquid chemicals such as formalin, rectified spirit etc., are used. Formaldehyde is available as 40% solution, formalin, in the market. For the wet preservation it should be diluted to 4% and is neutralised with 10 grams of borax to every litre of the solution. 90% alcohol is used to preserve certain specimens. For preserving sponges 90% alcohol should be used. Jellyfishes may be preserved by 4% solution of formalin.

Dry Preservation

Insects, birds, and mammals can be preserved as dry preserved specimens. In this method the perishable parts such as the flesh and muscles in the body should be removed. The skin portions should be preserved with the help of chemicals so that the skin is flexible and not eaten by insects. The body is given a false body with jute or similar materials and is kept in the right position so that they look like the original position.

Preservation of Mammals

Preservation of mammals involves skinning, tanning and mounting. The skin is removed by cutting open the belly and the skin is peeled down over the hip. The hip joints and leg muscles are cut from the pelvis. The tail skin is peeled back on the tail. Then the forelegs are cut at the shoulder joints and skinning is continued down over the head. The skull is separated from the neck at its base keeping it attached to the skin at the snout. Brain and eyeballs are scooped out from the skull. Arsenic paste is applied over the limb bones and to the skull.

Fine powdered alum is rubbed over the inner surface of the skin. The inner surface is also rubbed with stone to remove the tissues and flesh and fatty oil is applied. The arsenical paste is applied over the inner surface of the skin and also on the limb bones and the skull.

Mounting is done after the false body is prepared and the preserved skin is fixed to the artificial body and stitches are made. Artificial eyeballs are fixed and suitably painted. The science of preserving the animal specimens is called *Taxidermy*. Taxidermy was coined from two Greek words, Taxis meaning arrangement and Derma meaning skin. This is nothing but the skin art.

Advanced Methods of Preservation

Plastic Infiltration

After preserving the animal, resin is injected into the body to preserve the internal organs. Then the specimen is mounted on a glass plate and immersed in the resin for about 24 hours. Then the mount with the animal is taken out and allowed to dry. After thoroughly dried, the animal is separated from the mount. Fishes and reptiles may be preserved by this method.

Plastic Embedding

In this method plastic resin is used to mould the specimen. The liquid resin is taken in a glass cell and the specimen is kept inside and the catalyst and the accelerator are added. It solidified

and the specimen is preserved inside the resin. By this method some insects, fishes and reptiles may be preserved.

Freeze-drying

In the methods of preservation it is very simple and important method followed in the advanced countries. After keeping the animal in the required position, liquid nitrogen used to fix the specimen in position. This makes the specimen is devoid of moisture. Then the specimen is placed inside the freezing chamber in which low pressure and temperature down to -25 to 45° Centigrade is maintained. In this method the moisture is completely removed. Artificial glass eyes of appropriate size and colour are fixed inside the eye sockets replacing the natural eyes.

PRESERVATION OF BOTANICAL SPECIMENS

Collection of Plants

The botanical specimens are necessary as a whole for the study of the various parts in a museum. Therefore when collection of botanical specimens is made it should be noted that the plant should be collected with roots, flowers fruits etc. The common and general equipments for collection of plant specimens are the vasculum (a tin box) and the portfolio (wooden frames with blotting paper).

Botanical specimens as a whole can be classified as follows:

1. Thallophytes (bacteria, algae, fungi, lichens)
2. Bryophytes (liverworts and mosses)
3. Pteridophytes (clubmass, horsetails, ferns)
4. Gymnosperms (trees with exposed ovules and pollen grains)
5. Angiosperms (monocotyledon)

Botanical specimens may be preserved both by wet preservation and dry preservation. Besides this the botanical specimens may be prepared as models and pictures.

Thallophytes: Algae are preserved with the help of about 4% formalin mixed with the water in which they grow. Fungi are poisoned with a saturated solution of alcohol with mercuric chloride and allowed to dry. Lichens are poisoned with a 1.25% solution of corrosive sublimate in alcohol.

Bryophytes are preserved as dry preserved specimens with the help of 1. 25% solution of corrosive sublimate in alcohol.

Pteridophytes are preserved by treating them with copper acetate and glacial acetic acid.

Gymnosperms are preserved with the help of a saturated solution of mercuric chloride in alcohol.

Angiosperms are preserved by different ways depending upon the type of the plants etc.

Herbarium is prepared by displaying both the sides of the leaves and flowers in the drier. First few days the sheets of paper should be changed daily then on alternative days. The specimens sheets should be fully documented for study purposes.

Bibliography

1. Agrawal, O. P., *Preservation of Art Objects and Library Materials*, National Book Trust, India, 1993.
2. Andrew Oddy, Ed. *The Art of the Conservator*, Published by the Trustee of the British Museum, London, 1992.
3. Arun Ghose, *Conservation and Restoration of Cultural heritage*, Agam Kala Prakashan, Delhi, 1989.
4. Chandrasekhar, M. S., *Plant Life – Collection and Preservation*, Handbook of Museum Technique, Ed. A. Aiyappan and S. T. Satyamurti, Government Museum, Madras, 1960.
5. David Burgess, *Chemical Science and Conservation*, Macmillan, 1990.
6. Garry Thomson, *The Museum Environment*, Butterworth-Heinemann, 1994.
7. Hedges, H. N. *Showcases Made of Chemically Unstable Materials*, Museum, 34 (1), UNESCO, Paris, 1982.
8. Jawahar, P., *The Preservation of Zoological Specimens, Care of Museum Objects*, Ed. N. Harinarayana, V. Jeyaraj, Government Museum, Chennai, 1997.
9. Jaya Appasamy, *Tanjavur Paintings of the Maratha Period*, Abhinav Publications, New Delhi.
10. Jeyaraj, V., *Conservation in Museums*, Government Museum, Chennai, 1995.
11. Kaplan Flora, E. S., *Museums and the Making of Ourselves*, Leicester University Press, London, 1994.
12. *Manual of Curatorship*, Ed. John, M. A. Thompson and others, Butterworths, London, 1984.
13. Miles Roger and Zavala Lauro, Ed. *Towards the Museum of the Future*, Routedledge, London, 1994.
14. Pushpa, M. N., *Handbook on Preservation of Botanical Specimens*, Government Museum, Chennai, 1997.
15. Satyamurti, S. T., *Preparation of Zoological Museum Material*, Handbook of Museum Technique, Government of Madras, 1960.
16. Susan Bradley, Ed. *A Guide to the Storage, Exhibition and Handling of Antiquities, Ethnographia and Pictorial Art*, Department of Conservation, British Museum, London, 1993.
17. *Training in Conservation*, Published by the Conservation Unit of the Museums and Galleries Commission, London and United Kingdom Institute of Conservation, London, 1993.
18. *Working in Conservation*, The Conservation Unit of the Museums and Galleries Commission, London, 1993.

CHAPTER XV

STUDY OF SELECT MUSEUMS IN INDIA

CHATRAPATI SIVAJI MUSEUM (PRINCE OF WALES MUSEUM), MUMBAI

History of the Museum

By a resolution adopted by the Government of India, the idea of starting a museum in Mumbai was initiated in 1892. The idea of starting the museum was to promote trade and industries of the country. In 1901, the objects acquired by the Bombay Natural History Society, Anthropological Society, Victoria and Albert Museum, London, and the J. J. School of Art were collected in the Town Hall, where originally military offices



Chatrapati Sivaji Museum, Mumbai

were functioning. In 1904, a representative committee was set up and they have selected a site, which was called Crescent Site because of its shape, for the construction of the museum. Chatrapati Sivaji Museum (Prince of Wales Museum), Mumbai was established in 1905 to commemorate the visit of the Prince of Wales in 1906. Mr. George Wittet, an English architect, designed the impressive domed building. The main block of this museum was completed in 1914, but was used as a military hospital and was handed over to the trustees of the museum only in 1921. The museum was finally open to the public on 10th January 1922. An extension, where natural history specimens are presently displayed, was constructed and annexed in 1938. During the Second World War, the major collection of the museum was shifted to a safer place and again shifted back to the museum in 1946.

Style of the Architecture

The architectural style of the museum is Indo-Saracenic i.e., a curious mixture of Indian and Muslim architectures. There are large archways everywhere of Muslim design, which are repeated all over in different proportions. The museum building is one of the few specially planned and built as a museum. It is constructed of basalt and kuria stone, with elaborate brackets and carved features on its principal exterior. The main elevation three storeys high capped by a dome set upon a base that adds another storey



to the centre of the composition. The walls are thick and the ceilings are very high. The large marble octagonal foyer on the ground floor has eight columns rising up to the first floor. The main octagonal axial block is of a monumental proportion having a domed rotunda of about 75 feet inside. Large windows are found in the halls. The plan of the museum is simple, with a central hall from which the staircase leads to the upper floors with galleries branching out on the right and left. The ground floor consists of the Commarasamy Hall, sculpture gallery, natural history section. The first floor consists of Indian miniature painting gallery, decorative art gallery, and the gallery of Tibetan and Nepali art. European paintings gallery, armoury, and the textiles gallery are in the second floor.

Collection

The collection of the museum includes the collections of Sir Purushottam Mavji (1915), the gift of Sir Ratan Tata (1921), the collection of Sir Dorab Tata (1933) and the collection of sculptures and coins from the Poona Museum and Bombay Branch of Royal Asiatic Society. The Bombay Natural History Society helped the museum to enrich its collections.

There are terracotta objects of the Indus Valley civilisation, Buddhist sculptures like Bodhisathva, Maithreya, Uma Maheswara panel, panel of Brahma, Vishnu on the Sessa, clay and stone tablets, personal emblems of traders, jewellery, paintings, thankas, Bidri work, decorative art works, glass, jade, porcelain wares, mammals, birds, fishes are the important collections of the museum.

THE NATIONAL MUSEUM, NEW DELHI

History of the Museum

In 1946, the Government of India prepared the plans for a National Museum at New Delhi in 1946 by the Gwyer Committee set up. It was not put into action immediately as the finance necessary for its establishment was not readily available. On 15th August 1949, Thiru C. Rajagopalachari, the then Governor General of India formed the nucleus of this museum at the Audience Hall of the Rashtrapati Bhavan. The nucleus of the collection consisted of items, which had been sent to the Royal Academy, London for an exhibition in 1949. The objects received from various museums for the purpose of the exhibition were not returned to the respective museums. Instead it was decided to keep the objects in New Delhi to form the National Museum. The corner stone for the new building at the Janpath Road was laid on 12th May 1955 by the then Prime Minister of India, Pandit Jawaharlal Nehru. Thus, the National Museum, New Delhi, started functioning in true sense only with the inauguration of the first unit of its building on 18th December 1960. The total area of the museum was 45% of the proposed building area. The later addition was made in and it has taken the final shape as contemplated.

Architecture

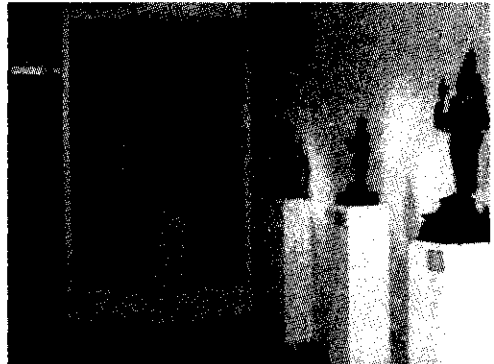
It is a modern building constructed for the purpose of the museum. It has got a dome just above the foyer of the museum. It is a three storied building with the basement. The basement is meant for storage, modeling unit, canteen etc. It has got one main entrance for the public as well as the staff; one entrance for the staff on holidays. One entrance with sloping way is provided for the incoming and out going of heavy objects. In the centre of the building there



is an open space where a garden is maintained. It has got a theatre, seminar hall, canteen, library, photography unit, packing unit, air conditioning unit, etc. There are both steps and lifts to all the floors.

Collections

Apart from collections of pre-history, archaeology, jewellery, paintings, decorative arts, manuscripts, Central Asian antiquities, anthropology, pre-Columbian and Western art, arms and armour and epigraphy, pre-history, Indus Valley Civilisation, Maurya, Satavahana and Sunga art, Late Medieval art, Indian bronzes, Chamba Rangmahal, Indian miniature paintings, Pre-columbian and Western art, Indian coins and Copper plates, Wood-carvings and Musical Instruments. The museum today has separate branches of publications, public relations, education, library, exhibition, display, modeling, photography, security and administration. A well-equipped conservation laboratory not only provides restoration to all the art objects but also training facilities to the students and deserving professionals.



New galleries Viz. Buddhist Art, Tantra Art, Evolution of Indian Scripts and coins, Decorative Arts, Paintings from Tanjore and Mysore, Tribal Life Style of North-East India, Jewellery, Indian Textiles are set up recently. An exhibition of India's Maritime heritage set up by the Indian Navy in the National Museum covers the evolution of maritime activity of India from Indus Valley Civilisation onwards.

Activities

Training opportunities to the museum personnel, permission to photograph the objects for the reproduction and publication and access to the reserve collection and library are provided to museum professionals, scholars and the general public. Photographs of art objects are also made available to the public on payment. The experts with prior appointment offer advice on identification of art objects owned by individual and institutions. Free guided tours to the galleries and film shows in the auditorium are arranged everyday. Gallery talks are held on every Wednesday on specific topics in the respective galleries at 11 a.m. Entry fee is Rs.5/-, Monday is holiday.

GOVERNMENT MUSEUM, CHENNAI

History of the Museum

The Madras Literary Society, an auxiliary wanted to start a Museum of Economic Geology at Madras in 1828. On February 28, 1844, Henry Chamier, a member of the council recommended Madras Literary Society, to start a museum for the benefit of the scholars and students and to the Court of Directors of the East India Company.

The Madras Museum was organised during the year 1851, with 1,100 geological specimens with Surgeon E. G. Balfour (1851-59) as the first officer-in-charge in the college of Fort St. George. Museum was thrown open to the public on April 29, 1851. Members of the European Community as well as Indian donors like the Rajas of Cochin and Travancore, the Nawab of Carnatic and several South Indian Zamindars, added to its collections. In December 1854, the museum was moved to the Pantheon, the present location. In 1896, the Front Building with the Museum Theatre and The Connemara Library was built. In 1909, Victoria Memorial, the present National Art Gallery Building was constructed. In 1939, the New Extension Building, i.e. the main entrance building was opened. In 1963, the buildings for the Bronze Gallery, Birds' Gallery and the Chemical Conservation and Research Laboratory were added to the museum. The Contemporary Art Gallery and the Children's Museum were added to the museum in 1984 and 1988 respectively.

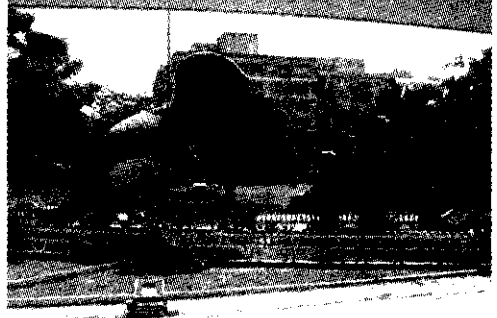
Architecture

Originally the museum campus had the extent of land up to 43 acres. Now, the area of this campus is about 16 acres. The campus has six buildings having galleries to art, anthropology, archaeology, botany, chemical conservation, children's, geology, numismatics and zoology. The oldest building is the Pantheon, the building, which contains the sculpture, zoology, geology, and



botany galleries. It has been built in the Gothic style with triangular front elevation. Except this and the Victoria Memorial Hall all other buildings were constructed for the use of the museum. Except the Children's Museum all the buildings have a high ceiling. They have large windows provided with stained glass or wooden planks, thick walls. The halls were so designed for the setting up of museum galleries including the storage with the knowledge of museology available during that period. Most of the buildings had the facilities for the natural light to come into the galleries.

The Children's Museum is the latest building constructed in the campus and it is constructed in such a way that it enjoys all the facilities required for a modern museum. It can be called as a modern museum building as a model. It has a foyer. The foyer has all the facilities such as seats for the visitors, guide room, counter, lift, water facilities, toilet, a ramp, a central exhibit, a stair case to the first floor and the basement floor, way to the gallery. A separate



Dinosaurs in front of the Children's Museum

entrance to the curatorial section, entrance to the gallery from the curatorial section, sufficient space for galleries and workshop etc., are some of the important aspects of the building. There is a Science Park behind the Museum and the way is through the foyer. The building itself is enjoying all facilities to be used as a modern museum. The campus is so big that it enjoys all the facilities and a very good landscaping in the frontage. It has within it the Connemara Public Library, Police Station, large area for parking vehicles, facilities for visitors to sit and enjoy the campus, a very large museum theatre, which is one of the attractions of the museum where programmes are conducted through out the year. There is a sales counter for the sale of the museum publications and the replicas. The Centenary Exhibition Hall in the museum caters to the needs of those who would like to conduct exhibitions besides the regular exhibition and meetings of the museum. The museum campus is provided with six gates in the front and one gate at the backside. There is also the quarters for the head of the institution, quarters for one of the office superintendents and the quarters for the Public Works Department Engineer. A Guest House is getting ready for the purpose of the museum. The Department of Museums has 20 district museums in the district and they are functioning in the style of the Central Museum in Chennai either in their own buildings or in rented buildings. The ticket counter is at the main entrance at the Pantheon Road side.

Collections

The museum was started with 1,100 geological specimens. Members of European Community, Indian donors like the Rajas of Cochin, Travancore, the Nawabs of Arcot, several South Indian Zamindars helped to increase its varied collection of museum objects. In 1856, the Amaravati lime stone sculptures were displayed in the Pantheon Building. The Thanjavur Armoury was shifted from Thanjavur to the Madras Museum in 1874, the whale skeleton was acquired.

Besides the collections made by die superintendents and Curators the antiquities were added to the museum through the purchase of art objects and treasure-trove finds. It is a multipurpose museum consisting of art, cultural, science and scientific objects of national and international standing.

During the 151st year celebrations of the museum many changes have been made. The Bronze Gallery, Numismatic Gallery, Conservation Gallery were refurbished. Holographic Gallery, Industrial and Handicrafts Development Gallery, Rock and Cave Art Gallery are the new galleries established in the museum.

Activities of the Museum

The Government Museum, Chennai has a separate section for carrying out educational activities. There are guides in each building to provide the guide services to the visitors coming as groups. Regular film shows are screened for the benefit of the school children and the visitors on specific days and also at the request of the schools. The Education section also has all facilities to conduct lectures and audio-visual shows including wide screen to screen video programmes for larger crowds. As a part of the educational activities, this museum lends duplicate specimens, photographs, etc., to the requesting schools for conducting temporary exhibitions. Popular and special lectures, seminars, workshops, exhibitions etc., are conducted by various sections of the museum.

Many training programmes are conducted in this museum for the benefit of the students and public. In the beginning, there was a regular course for the use of the teachers under the name Teacher Demonstration Course. Now, similar courses are conducted for the teachers during museum week celebrations for a day. There is an annual course on Preservation of Biological Specimens, Care of Museum Objects and Importance of Geological Specimens. This museum has introduced a course on Treasure-trove Objects for the officials working in the department like revenue, police and customs who deal with the treasure-trove finds. It is planned to conduct regular museological course in the near future at the post-graduate level. The museum is offering facilities to conduct research on various subjects dealt in the museum. At present it has been recognised by the Universities of Madras to conduct research leading Ph.D. Degree in both anthropology and chemical conservation. There is a plan to make it as a deemed university in the long run.

Publications

This museum has around 200 publication to its credit besides brochures on galleries. A biannual Museum's Journal is brought.

Conservation Facilities

This museum is the oldest museum in the country, which is blessed with a conservation laboratory. The laboratory of the museum was established in 1930. An additional building in the year 1963 extended it further. In the beginning it was catering to the needs of the Madras



Chemical Conservation and Research Laboratory

Museum especially to preserve the bronzes and metallic objects. Now it is meeting the conservation needs of the Central museum and the 20 district museums. Recently it has introduced the conservation service to the institutions and individuals on



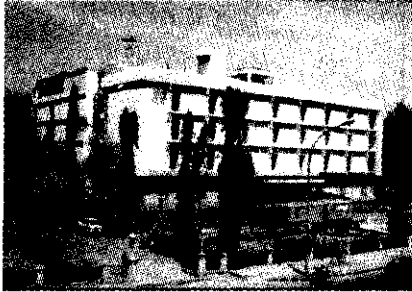
A Conservation Training

charge basis. Training programmes are conducted to the museologists, archivists, artists, Executive Officers of the Hindu Religious and Charitable Endowments Department separately. Recently the author has been recognised by the University of Madras as a research supervisor in die subject of chemical conservation. It provides internship training in restoration of paintings and restoration of Kalamkari textiles. Many research projects are under progress with other institutions like the Indra Gandhi Centre for Atomic Research, Kalpakkam and Anna University, Chennai. On Fridays and National holidays the museum is closed. Entry fee is charged.



Conservation Gallery

**VISVESVARAVA INDUSTRIAL AND TECHNOLOGICAL MUSEUM,
KASTURBA ROAD, BANGALORE-1**



Visvesvaraya Industrial and Technological museum is one of the units of the National Council of Science Museums, an autonomous body functioning within the purview of the Department of Culture, Ministry of human Resource Development, Government of India. The museum was set up in the year 1965. The main objective of the

museum is to popularise science through temporary, permanent, travelling exhibitions and varied education extension programmes. The museum also collects and displays artefacts of historical and technological importance. Science popularisation is carried out through a variety of Educational Extension Programmes like Popular Science Lectures, Science Seminars, Science Quiz Contests, Nature Camps, Sky Observation Programmes, Teacher's Training Programme, Hobby Centres for Students, Science Fairs, Computer Fairs etc. The following are the permanent galleries right now at the museum, with about 700 exhibits.



1. Engine Hall
2. Fun Science
3. Electro-Technique
4. Timber, Paper and Metals
5. Popular Science
6. Children's Science
7. Heat Pavilion

It also consists of a Science Park, Computer Centre, Library, Auditorium, Tararnandal, Mobile Science Exhibition. There are two mobile exhibition buses for the museum, which work in the moffusil areas. The museum is a four storied building of modern architecture. The museum is visited on an average of about 9,00,000 visitors. About 20% visitors are students. This museum functions on all days except Deepavali and Dasara from

**PERIYAR SCIENCE AND TECHNOLOGY CENTRE, KOTTURPURAM,
CHENNAI - 600 025.****Historical Background**

In a sprawling area of 21.25 acres at Kotturpuram, the Periyar Science and Technology Centre was established in 1986. It is a Science and Technology Museum run by the Government of Tamil Nadu. This museum gives thrust to popularise science and technology among the students, general public and tourists.

**Galleries**

The galleries are located inside a modern concrete building constructed only for the purpose of the science and technology museum. This museum has seven galleries popularising scientific and technological aspects through working models. Most of the exhibits are interactive type. The various galleries are innovation, transport, electronics and communication, physical science energy, material science, a science park and a planetarium.

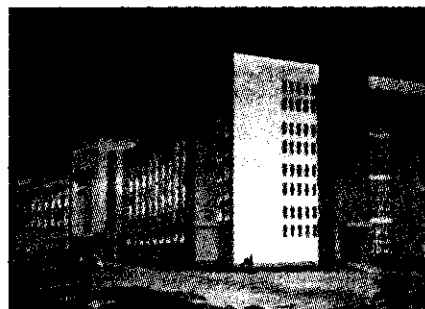
Activities

This museum is open from 10 to 17.45 Hrs daily. This museum closes on the National Holidays. Admission is through admission fee. Separate fee is levied for planetarium. Education is based on discovery oriented learning. It also consists of Science Park, Eco Park, Energy Park, Traffic Park and a model meteorological observatory.

SALAR JUNG MUSEUM, HYDERABAD

Historical Back-ground

Salar Jung Museum, Hyderabad has a great history behind its formation. Its collection has grown out of the rich and variegated collection made by the family of Salar Jungs Mir Turab Ali Khan, Salar Jung I, Mir Laiq Ali Khan, Salar Jung II and Mir Yousuf Ali Khan, Salar Jung III who acquired objects of art from different parts of India and the world. The major portion of the museum collection was acquired by Mir Yousuf Ali Khan, popularly known as Salar Jung (1889- 1949) who served as a prime minister (1912-14) under Mir Osman Ali Khan, the Nizam VII. During his visits to European, middle and Far Eastern countries he collected art objects on a large scale. He spent nearly 35 years in building up a remarkable one-man collection of varied art treasures from almost all parts of the globe. He ended his life on 2nd March 1949 at the age of 60. In the absence of any direct descendants, the Government of India appointed a committee to administer the Salar Jung Estate. In May 1949, the then Madras State Government formed an Estate Committee to manage the Salar Jung Estate and property. In order to perpetuate the name of the Salar Jungs, the Salar Jung Museum was established on December 16, 1951 in the Diwan Deodi, the residential palace of Salar Jung III. It was declared open by Pandit Jawaharlal Nehru. In 1961, through an Act of the Parliament, the museum along with its library was declared as a Museum of National Importance. As the Diwan Deodi was old and inadequate the present building was constructed in 1963. Mr. Hashmat Raza was the Architect of the building. At present two more buildings have been constructed flanking the existing building and the display is also completed. The motto of the museum is as follows:



This exposition on the monumental inheritance of our civilisation is aimed to amuse the inmate lobe and create a sense of belonging among the country youth towards this invaluable Indian Heritage. Citizens of this land take care and rear this remarkable Heritage of Mankind.

Collections

Salar Jung Museum has a total collection of 48,361 art objects out of which 3,777 were purchased and 2,061 were acquired through gifts. These objects are being classified as Indian, Western, Middle Eastern and Far Eastern collections. The collections are from China, Japan, Burma, Korea, Tibet, Nepal, Thailand, Egypt, Syria, Persia, Damascus, Bukhara, Siam, Malay, Arabia (eastern), England, Ireland, France, Belgium, Italy, Germany, Czechoslovakia, Turkey, Istanbul, Rumania, Hungary, Venice, Bauvaria, America and Austria (western). The Indian collections are from all over the country. This museum besides the library education wing, chemical conservation laboratory, photo section, display section, reception, cloakroom, sale's counter and office. The care taker section is equipped with a separate security wing to safe guard the art collection round the clock. The library has 56,973 printed books in English, Urudu, Hindi, Telugu and Persian. Besides these there are manuscripts numbering 8, 5 56.

Architecture

The architecture of the Salar Jung Museum has some speciality. The architect of the building was Mr. Hasmat Raza. The building was constructed by concrete in the year 1968. An aerial view of the building will be like a butterfly. The architecture is simply modern. The public area consists of the foyer with provision for sitting, cloakroom, security room, publications' sales counter, ticket counter, galleries, children's section (7 galleries) open yards with gardens, lift, stair case etc., in the ground floor. The first floor consists of 16 galleries. The second floor consists of a theatre, library, the committee room, the reading room etc. The third floor consists of the laboratory, storage and other technical sections. There is a good garden in front of the building. In 1998 two large two storied buildings flanking the earlier museum building were constructed. The Eastern Block consists of the foyer, toilets, kitchen, restaurant, lecture hall, education wing, lift, stairs, exhibition galleries and storage in the ground floor. The total area is around 2,000 Sq. M. The first floor has provisions for galleries, lounge, security room, publication, toilets etc. The total area available is around 2,000 Sq.M.



The western block in the ground floor consists of the lounge, auditorium, storage, machine room, electrical room, and central courtyard, toilets and exhibition area. The total area is 2,000 Sq. M. The first floor consists of the lounge, publication counter, security counter, toilets and galleries. The total area available is around 2,000 Sq.M. The air-conditioning room, generator rooms are separately being built. The museum campus has a compound with two gates, one for entry and the other for the exit. The frontage is provided with a lawn and garden. The back yard is having the quarters where the security staff is accommodated. The Director's quarters is also located in side the campus. The new buildings do not have plain front walls but with a linear opening with a pillar and an arch having a Moghul touch. The museum has a mobile exhibition unit. Film shows are screened on Saturdays and Sundays. Regular exhibitions are conducted.

**INDIAN MUSEUM,
27, JAWARARLAL NEHRU ROAD, KOLKATA - 16.**

Historical Background

The Danish Botanist, Dr. Nathaniel Wallich, proposed a museum and established it in Kolkata



in 1814. It is an offspring of the Asiatic Society of Bengal, which was founded in 1784. Thus, the Indian Museum, Kolkata was the earliest and largest multipurpose museum in India. In the beginning the collections were of ethnology, geology and zoology. In 1866, the first Indian Museum Act, transferring the management of the newly formed Board of Trustees was enacted. The foundation stone for a new building was laid in 1867 and was completed in 1875 and was thrown open to public in 1878. In 1960, amendments were made subsequent to the 1910

amendments to the Indian Museum Act, and the new Board of Trustees was headed by the Governor of West Bengal as its Ex-officio Chairman. In 1962, the museum directorate was created to carry out the administration. Today, there are galleries like archaeology, ethnology, geology, bronze, musical instruments, manuscripts, paintings, art of Bengal, Tibetan thankas, tribal arts, coins, Egyptian art etc.

Architecture

The building was constructed in the Victorian style. The British architect, W. L. Grand Ville, designed the new building. It was built in two storeys around a central open quadrangle, with corridors and verandas supported by huge iron columns. The ceilings are very high. There are large pillars. The vast staircase extracts breath-taking exercise from the visitors. There is a lift also for the use of the visitors. The building is three storied. The buildings are maintained with their own funds through the help of the Archaeological Survey of India.

Collection

Indian Museum, Kolkata is a multipurpose museum. Now, it is the largest museum in the Asia Pacific. The art section consists of miniature paintings, ivory, Bidri wares, textiles, woodcarvings, bronzes, jewellerys, temple banners, scrolls etc. The anthropology section consists of tribal and folk art objects, musical instruments, dresses, costumes, masks, arms and weapons etc. The archaeology section consists of Indus Valley excavated objects, sculptures, the Bharhut stupa remains, terracotta objects, bronzes, wooden sculptures, inscriptions, seals, coins, manuscripts, architectural remains etc. The total art collection is around 1.15 lakhs.

The zoology section consists of mammals, reptiles, birds etc. It is maintained by the Zoological Survey of India. The Botany Section consists of wood-yielding plants, medicinal herbs, agricultural products, fibres and narcotics etc. It is maintained by the Botanical Survey of India. The Geology Section consists of fossils, styalik objects, minerals, precious stones, meteors, quartzite etc. it is maintained by the Geological Survey of India. The natural sciences objects are around 5 lakhs. The art galleries are under vigilance with the help of closed circuit television. There is an education section to conduct educational programmes and exhibitions. In 1969, a Museo-bus was introduced. From 1978, the gallery classes are conducted. In 1984, a short-term course in museum studies was introduced. In 1987, an audio-visual van was commissioned and it takes



the museum activities to the remote corners of West Bengal. There is an audiovisual corner where programmes are conducted regularly. There is a conservation laboratory to preserve museum objects. It is trying to introduce a Mobile Laboratory to help small museums in conserving the museum objects. Presentation unit, publication unit, modelling unit, education unit are the various supply units in the museum. The modelling unit prepares replicas of important exhibits to popularise art and culture. The photographic unit prepares photographs and slides for publication, research, documentation and lectures. A good reference library is an added attraction of the museum. The Asutosh Birth Centenary Auditorium is another attraction of the museum. Entry to the museum is through payment of entry fee. Students are allowed free of charges. Photography and videography are charged.

It opens every day from 9.30 am to 5.30 pm except Independence Day, Republic Day, first day of the Hindu New year, Bhai Beej, Dhuleti. Guide service is available. Photography is available on charge basis.

**THE VICTORIA MEMORIAL HALL,
QUEEN'S WAY, KOLKATA.**

Historical Background

The Victoria Memorial building is housing the Victoria Memorial Hall, with a collection of almost exclusively related to the British colonial period. The idea of building a memorial to Queen Victoria, who had died in 1901, is owed to Lord Curzon. The English architect, William Emerson of the Royal Institute of British Architects, designed the building to look something like St. Paul's Church in London. The building was clad with the marble slabs brought from Makrana, the place, from where the marbles for Taj Mahal were brought. The building was completed in 1921.

Architecture

The impressive Victorian building with its marble facing and dominating dome reaching a height of about 57 metres is one of the landmarks of the city Kolkata. At the time of its construction its dome was the fifth largest in the world. A revolving Angel of Victory, a six metre bronze image weighing three tonnes is at the top of the dome. The garden and the drive to the entrance of the building are decorated with sculptures, including that of Curzon in marble.

Collection

This museum has many galleries like Royal Gallery, where large paintings depicting various episodes in the life of Queen Victoria. A few of the personal belongings of the queen are also on display. In the adjoining gallery some interesting photographs are displayed. The Portrait Gallery consists of paintings of British administrators and scholars and some manuscripts. The Sculpture Gallery consists of life-size statues of Lord Clive and other governor-generals. This museum also has a very good collection of work done by the two professional artists Thomas Daniell and William Daniell. It has a collection of textile over 100.

The Victoria Memorial Hall is one of the museums, which is devoted exclusively for the British art in India.

**NEHRU CHILDREN'S MUSEUM,
9411, CHOWRINGHEE ROAD, KOLKATA -700 020.**

Historical Background

Shri Jugal Srimal started in 1945 with the help of encouraging young men National Cultural Association with the object of serving society especially for underprivileged. The Nehru Children's Museum was established in 1972. It is accommodated in a multi-storied building provided with lift, staircase, toilets, etc., for the use of the visitors.

Collections

The Nehru Children's Museum has three floors of exhibited galleries. The stories of Ramayana and Mahabharatha have been depicted in vivid with meticulous finesse through miniature models in 123 illuminated showcases dioramically. Dolls from 86 countries of the world are exhibited. An illuminated aquarium has been set up with fishes of Indian origin.

Activities of the Museum

The Nehru children's museum, Kolkata functions from 11 a.m to 7 p.m. It is closed on Mondays and on Tuesdays it functions from 2 to 7 pm. It collects an entrance fee of Rs. 5/-. No charges for photography are levied. Exhibition of paintings is arranged. Every year Sit and Draw Art Contest is held by the Nehru Children's Museum and around 7000 participate. Paintings of 15 winners of the contest are sent for National Painting Competition organised by Indian Council for Child Welfare, New Delhi. The winners are offered scholarships. Nehru Talent Starch Contest is conducted every year and plaques and cash awards are conferred to the winners. Children's Camp-Learn to Live Together- is conducted. Seminars, competitions, educational workshops, tours etc., are the scheduled items of the camp. Sishu Bhavan Patrika containing articles by children is published. Vocational training is provided on various traditional crafts, automobile mechanism, computer-training etc.

GOVERNMENT MUSEUM, MATHURA

History of the Museum

Government Museum, Mathura is a State owned museum in the State of Uttar Pradesh. Mr. F.S. Growse, then Collector of Mathura was the founder of the Mathura Museum. He was an archaeologist and writer and he wrote many articles on Mathura School of Art. During his time many antiquities from this region were taken to different parts of India and abroad. He checked the out flow of antiquities from Mathura and housed the objects available in an unusual guest house near the collectorate building, which was constructed by the Magistrate and Collector of the district, Mr. Thornhill. Thus the humble beginning of the museum was in 1874. Due to the shortage of space, the scope of the museum was limited to the archaeological exhibits only. As the collector of Mathura, Mr. Vigram, completed the building construction and the museum was open to the public in 1881. In 1900, the Municipal Board of Mathura took the administration of the museum. The Superintending Archaeologist of the Northern Circle of the Archaeological Survey of India, Mr. J. Ph. Vogel, brought back several outstanding art pieces to Mathura and prepared a comprehensive catalogue of Mathura Antiquities in 1910. Pandit Radha Krishna was the first Curator of the Museum in 1912. In 1912, the Provincial Government took over the administration of the museum from the municipal board. Since the existing building was not sufficient to hold its collections, a new building was constructed in the Dampier Park and the museum was opened on 25th January 1933.

Architecture

The Guesthouse constructed by the District Magistrate and Collector, Mr. Thornhill, was the first building used for the museum. When it was used for the museum, certain alterations and additions including the intricately carved front porch were introduced. It, however, remained a beautiful specimen of contemporary stone carving and lacked something in functional purpose. The wall surface of the central court is a mass of geometric and flowered decorations of the most artistic character. The bands of natural foliage, a feature introduced by Mr. Thornhill's own fancy, are very badly cut and not altogether in accord with the conventional designs of the native style by which they are surrounded. The present museum building in the Dampier Park was constructed in accordance with the design and plans prepared by Mr. A. L. Mortimer, the then Consulting Architect to the UP Government. To day it is an octagonal rotunda, according to the original plan. The complete building of red sandstone has a majestic look and the beautifully laid out gardens, both in and out sides the structure, have further enhanced its grandeur. The old building is at present functioning as the storage for the museum.

Collections

Mathura was one of the most important centres of sculpture producing during the Kushana period. Buddhism, Jainism and Brahmanism flourished side by side are represented remarkably in the Mathura Museum.

The following are the main features of the Mathura Art :

1. The sculptures worked for Buddhist, Jaina and Brahmanical faith alike.
2. The sculptures are executed in red, spotted red and some times buff coloured sandstone.
3. Anthropomorphic forms replaced the symbols of the Buddha.
4. The first image of the Buddha, the Jaina Tirthankaras and most of the Brahmanical Divinities appear and the development of their iconography begins.
5. Tutelary deities, representing the popular phase of religion, are given an important place. Foreign elements are blended with indigenous motifs.
6. Portrait sculpture is introduced.
7. Feminine beauty is treated with great delicacy and charm.

The exhibits arranged in the museum are in the chronological order. They are from about 1st millennium BC to about 15th Century AD. Display has been made as educative as possible by means of gallery charts and different types of labels. There are archaeological galleries like Terracotta Gallery, Sculpture Gallery, Paintings Gallery, Bronze Gallery, etc. In the Terracotta Gallery terracotta from different sites of Mathura are displayed. Maurya, Sunga, Sakakushana, Gupta, post Gupta and late medieval stone sculptures from circa the 3rd Century BC to 12th Century AD are displayed in the Sculpture Gallery. The scholars can see the storage only by prior permission. Besides die stone sculptures and terracotta objects, the reserve collection includes a large number of gold, silver and copper coins, clay scars, bricks, pottery pieces, some paintings and bronzes.



Buddha Image from Katra

Administrative Set-up

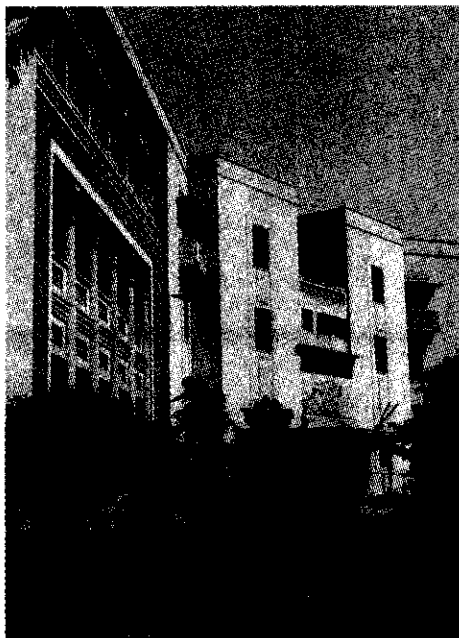
The State Government of Uttar Pradesh controls this museum. A Director heads this museum. A Curator heads each section. It has got a Library, Photographic Unit, Chemical Conservation Laboratory, Modeling Unit, Carpentry Unit, Sales Counter and the Administrative Office.

Activities

Besides carrying out the normal functions of acquisition, preservation, display and interpretation of the exhibits, it does educational and cultural activities such as film shows, temporary exhibitions, and lectures by eminent scholars. Many books, popular and research articles have been published by the museum.

STATE MUSEUM, BANARASI BAGH, LUCKNOW

History of the Museum



State Museum, Lucknow

Colonel Abbott, the then Commissioner of the Lucknow Division, conceived the idea of establishing a repository with the initial aim of collecting the specimens of art manufactures of Oudh and also the items relating to habits, customs and mythology of India. It was established in Chhoto Chhatar Manzil in 1863. It functioned as a Municipal Museum. It was declared as Provincial Museum in 1883. In June 1884, the museum was shifted from the Chhoto Chhatar Manzil to the Lal Baradari, Coronation Hall of the Nawabs of Oudh. Its archaeological section found an independent abode in the old Canning College building Kaiser Bagh in 1911. A management committee was constituted under the presidentship of the Commissioner of the Lucknow Division, M. F. S. Growse. Dr. A. A. Fuhrer, a well-known archaeologist of the time, took over the museum as the first Curator. In 1950, the Provincial Museum was named as the State Museum, Lucknow. Owing to its rapid growth of the collection, it was felt necessary

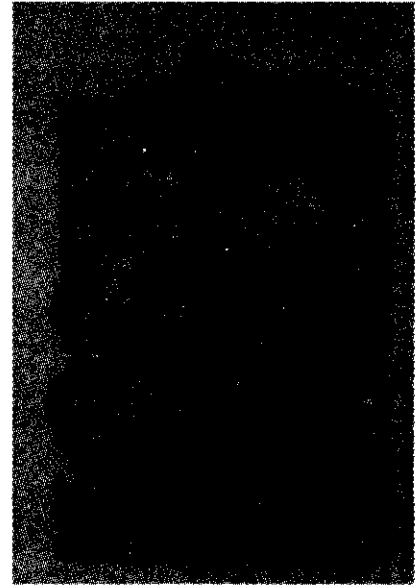
to shift it from Lal Baradari to the newly constructed museum building at Banarasi Bagh and was inaugurated in May 1963.

Architecture

The Foundation stone was laid for the new building in 1956 and it took about four years for its completion. The cost of the building at that time was Rs. 12 Lakhs. It is a 'V' shaped concrete modern building. It is a two storied building. It has a basement floor, ground floor, a mezzanine floor, first floor, second mezzanine floor and second floor. There is a rotunda from where one can enter into other galleries. There is a sales counter in the ground floor in the rotunda. It is provided with a lift for the use of the officials and to take the antiquities to and from the galleries. The ground floor on the right side consists of the Natural History Galleries and the left side has an auditorium. The entrance vestibule and the foyer impart the glimpses of the general arrangement of the galleries, history and salient features of the museum, information about the programmes and film shows and the theme of the special exhibition on the first floor. The first mezzanine houses the administrative block including the offices of the Director, Administrative Officer and the general office. The second mezzanine consists of the Photographic Laboratory, Chemical Laboratory and a Modeling Workshop. The second floor is used for storage and Library. The basement is used as storage and general stores.

Collections

This museum has a vast collection of over 83,000 specimens. This can be broadly classified into main five sections, viz. Archaeology and pre history, numismatics, art including paintings, textiles, metal ware etc., natural history and ethnography. Apart from these, the collection has also good representation of jewels and gold ornaments, arms and armours, manuscripts and Farmans, musical instruments and other miscellaneous curio items. The main sources of acquisition are purchase of antiquities, exploration and finds under Treasure-trove Act. The museum possesses some rare sculptures representing Brahmanical, Buddhist and Jaina pantheons and stone inscriptions and copper plate grants. This museum has some beautiful terracotta from Kausambi, Mathura, Sravasti and Bhitargaon. This is very rich in coin collection of Kushana kings, Gupta emperors, Delhi Sultans, Moghul emperors and Oudh rulers. This museum has a proud collection of ancient jewellerys and art pieces.



Simhanada Avalokiteshvara,
11th Cent. A.D., Mahoba

Activities

The Kanpur University has declared the State Museum, Lucknow as a recognised research centre since 1971 for doing research for the award of Ph.D. Degree in archaeology and Indian Art. The modelling section of this museum is preparing models both in plaster of Paris and fibreglass and is sold to institutions. A research journal by name Bulletin of Museums and Archaeology in UP is published twice a year. The museum has some catalogues on coins and sculptures. This museum is a centre of educational and cultural activities. Monthly lectures, special exhibitions, guided tours, painting competitions, training programmes for the physically handicapped, film shows, video films etc., are conducted regularly.

Facilities to the Visitors

Various facilities to visitors are available in this museum. Free guided tours in the galleries at fixed hours on prior intimation. Free entry to the bonafide groups of students. Regular film shows lectures and cultural activities are conducted for the benefits of the students. Publications, photographs, plaster cast models and coins are available on moderate rates. Open to the public on all days except Sundays, Mondays and other public holidays between 10.30 A.M to 4.30 P.M.

GOVERNMENT MUSEUM AND PICTURE GALLERY, CHANDIGARCH

Government Museum and Art Gallery, Chandigarh is a monument by itself, and was designed as a building for the museum by Le-Corbusier, a French architect. It came into being on the sixth of May 1968 with the untiring efforts of late Dr. M. S. Randawa, the then Chief Commissioner, Chandigarh.

Architecture

It has many distinctive features of the tall louvers, majestic portals, massive pillars, huge galleries that provide uninterrupted view, maximum use of natural light and rain catchment arrangement. When one visits the museum, one is at peace with the quiet magnificence of one's surroundings and does not feel awed by its bigness. In order to maintain the public interest, services of a modern designer Ratna Mathur Fabri was engaged to design the furniture, display screens, show cases and frames to arrange exhibits. It has one building for Natural History galleries and one for art and archeological galleries. The vast expanse of court yard of the museum is displayed with some contemporary sculptures suitable for environmental display. In the beginning of February, 2005 Chandigarh Harappan Gallery, evaluation of man and dinosaurs of India galleries were established.

Collection

The nucleus of the museum collection of art works is from the Lahore Museum. The collection consists mainly of Basholi and Kangra Schools and other Pahari Schools, besides this it has Persian, Mughal, Rajasthan paintings. The collection has famous Gandhara Sculptures, Hindu and Jain School's - Sculptures, textiles, coins, jewellery, metal objects etc. The major art purchase programmes led to the acquiring of modern paintings and sculptures. Excavated materials from Harappa, models of apes, charts pertaining to evolution of man and models, photographs, fossils pertaining to dinosaurs and animals and plants lived along with dinosaurs are displayed. Excavated materials from "Harappa, models of apes, charts pertaining to evolution of man, models, photographs, fossils pertaining to dinosaurs, animals and plants lived along with dinosaurs are displayed.



Computer Based Documentation System of Museum Collection

In the beginning, for documenting works of art, the museum was having only the main entry register. Later, the museum's curatorial staff added the sectional, movement, reserve collection, conservation laboratory, photo-print record registers, catalogue and index-cum-location cards, black and white and colour photo-print albums and colour slides.

Now, the museum established the Data Collection Management Section and inputting of inventory data, object description and conservation data of the collection is done. It has a conservation laboratory to take care of art objects in the museum.

MANIPUR STATE MUSEUM, IMPHAL

History

The Manipur State Museum, Imphal was open to the public on 23rd September 1969. It was inaugurated by the then Prime Minister of India, Smt. Indira Gandhi. To day, it is a multipurpose museum comprising of various sections viz, Archaeological, children's, ethnological and natural history and an open-air gallery for housing the 78 feet long royal boat Hiyang Hiren.

Staff

This museum is headed by a Curator and assisted by Assistant Curator, Technical Assistants, Administration and Galley staff.

Activities of the Museum

Besides the normal functions of the museum, the Manipur State Museum took up various activities like museum awareness programmes, conservation of cultural properties, science fairs, thematic exhibitions, training programmes, talk series, painting competitions, and video documentation of languishing forms of tribal festivals. Inter State Exhibitions, Conservation Workshop are the recent highlights of the museum.

Publications

The museum brings out publications time to time to highlight its achievements and progress. Booklets on Hiyang Hiren, The Last Battle-A Retrospective of Manipur's Last War of Independence, Directory of Museums, Conservation Report, Museum Bulletin are some to name. An inaugural issue of the Museum's Newsletter was brought out in September 1997. The second Newsletter was brought out in June 1999.

Rare Collections

The Manipur State Museum has in its collection the India Service Medal and the Way Medal awarded to the Maharajah of Manipar, for the service rendered to the Allied Forces during the Second World War. The medals are on display at the museum. The original Union Jack that is, the very flag of the British Imperial Forces that was first hoisted at the Unphal Kangla in 1891 and which was taken down after their surrender of power and the flag of Maharajah, Bodhachandra (1941-55) which was unfurled.

MUSEUM OF MANKIND, SHAMLA HILLS, BHOPAL-462 013

Historical Background

The Museum of Mankind was set up with a charter of objectives which moved away from the traditional charter of museums, by defining its role in national integration, salvage and revitalisation of vanishing but valuable traditions, in promoting research and development, and, what was most important, in promoting a new museum movement in the country. The museum began primarily as an open air Museum in 197 acres of land, on undulating hills, on the seven-mile long lakefront of Bhopal, the capital of Madhya Pradesh. The choice of the site itself was deliberate, intended to establish a hermeneutic circular dialogue through the Museum between the past, present and the future. The site is prehistoric, being situated in the quartzite sandstone belt of central India, in close contiguity to the Betwa source region and to the Narmada river valley, which have been amphitheatres of important geological events and human initiatives in the advance of civilisation. The site has 32 painted rock art shelters from historic, Mesolithic and earlier periods. Thus the museum offers every inch of its site as an item on display and provides exhibitions showing the continuity between prehistoric rock art, primitive tribal art, abstract modern art and the demonstrable connections among cultures in diverse temporal and spatial zones.

Collections

The *chundan vallam* from Kerala was brought from Kerala and displayed in the Museum. Missing Nagas from the northeast and Saoras and Kutiyakondhs from Orissa, Bodo Kacharis from Assam came and constructed their dwellings in the Museum. These communities in their free time come over to the Museum and repair the house constructed and use these occasions for performing their song and



dance dramas for themselves, and, for the invited audience in the open air earthen theatres, which have been built in different locations in the museum. The sacred and profane converge in the motifs and patterns in the Maoli Mata cho Gudi, the Angadev pole-palanquin deity, the Ratha in Bastar, the Ayyanar shrine from Tamil Nadu, the wooden temple from Kerala and in paintings marriage, fertility, creation, exorcism, mythologies on 120 metres of Museum walls.

Activities

The Museum launched programmes and activities for building up a new kind of Museum with direct participation of communities. The museum staff went round the country and established direct contacts with about fifty communities, both for folk and tribal, in different eco-climatic

zones of coasts, deserts, hills and river valleys, identified house types and settlements, items of casual and performing arts, represented in the museum, and invited them to the Museum to build and present the segment of Museum dedicated to the display of their cultures. Simultaneously, the folklore, the ritual, the mythology, the song, the dance, the chant which were connected with such presentation in the living context among the communities, were also enacted or performed in the Museum from time to time, to give sanction and meaning to display as a genuine activity, which fulfilled the norms set by communities.

The communities have also been co-ordinating and co-curating the workshops, seminars, exhibitions, training camps organised under the aegis of the Museum in and outside Bhopal in different parts of the country. Thus in a process of a reverse transfer of technology, the folk and tribal master craftsmen have camped in the museum and have trained the curious among the young and the old, in using different media like clay, cloth, metal, wood etc., for unique works.

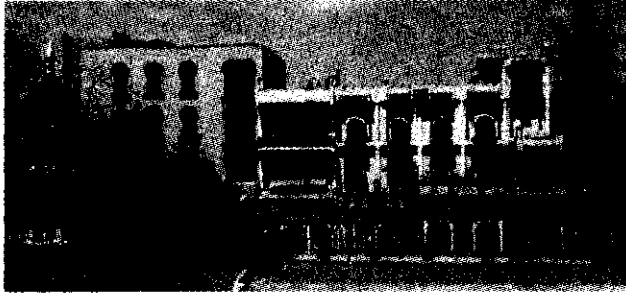
What distinguishes the Museum of Mankind from other open air museums of the world is the factor that this museum considers itself as a dynamic instrument for preserving communities, their habitats, their bio-cultural diversities, their location specific bio conservation strategies, their life enhancing knowledge and skills.

The Museum of Mankind therefore tries to point out and combat the slow relentless advance of this destruction. It is trying to point out that the museum need not develop as a fossil park, but develop and publicise the lesson that man himself may find himself in such a park, unless he is careful. It visualises its role as that of Noah's ark, in which the best and the finest in human civilisation and non-human nature can find its place in close congregation and association.

THE RAJA DINKER KELKAR MUSEUM SUKRAWAR PETH, NATU BAGH, PUNE, MAHARASHTRA-411 002.

Historical Background

The Raja Dinker Kelkar Museum is named after the late Raja Dinker Kelkar. It was established in 1962. He donated this museum in 1975 to the Government of Maharashtra. He spent nearly 60 years and collected objects from villages and towns of India. The objects in the museum are the clear testimony for his passion for art and a sense of humour. This museum was taken over by the Government of Maharashtra in 1975 and is managed by a board appointed by the Government.



Museum Architecture

This museum is located in Shukrawar Peth in Pune. This building is a three storied one. It is an attractive building with a historical appearance and the galleries unmistakable remind one of the life and culture of the Maratha period. It contains six galleries.

Collections

There are few museums in India which are as inspired as the Dinker Kelkar Museum. This museum has a vast collection of objects over 20,000 pertaining to the arts of everyday life, archaeology, art, history, musical instruments etc. Among them only 2,500 objects are on display. The main sections are Ivory, Wooden Objects, Lamps, Objects of Beautyculture, Arms and Armours, Tamboul, Mastani Mahal, Terracotta, Toys, Musical Instruments, Leather Puppets, Paintings, Sculptures, Coins, Earthenware, Writing Implements, Bronzes, Textile, Kitchen Utensils etc. Apart from this, the highlight of the museum, the Mastani Mahal and a special exhibition are displayed separately in the same premises. Woodcarvings from Rajasthan, Gujarat and South India such as decorated doors and windows find place in the museum. The metalware objects such as locks, inkpot, ritual bowl, hooka stands, nut crackers, boxes and intricately designed containers and lamps are quite remarkable. There is also an interesting collection of Citrakathi (scroll paintings) paintings from Maharashtra. These paintings depicts stories from Mahabharata and Ramayana.



GOVERNMENT MUSEUM AND PICTURE GALLERY, BARODA**Historical Background**

The Government Museum and Picture Gallery, Baroda was founded by Maharaja Sayaji Rao III, Gaekwad of Baroda. The foundation stone of the museum building was laid in 1887. And the building was completed in 1894. The Contribution of the Picture Gallery, Baroda began in 1908 and was completed in 1914. But the Gallery was open on 23rd March 1921 after the I World War.

Architecture

The earlier building was constructed exclusively for the museum in the Indo-Sarcenic style. The main foyer second phase is merely British style. The third phase is a brick worked building. The picture gallery has got a special designing to avoid entry of moisture into the gallery.

Collelction

This museum is considered as one of the best galleries not only in India, but also in Asia and enjoys an international reputation. The European Picture Gallery is the one and the only one of its kind in India and one of the best in Asia. It is noted for having a big collection of Western oil paintings of the famous European masters ranging over 11 Schools of Art. It has 27 gallerlies comprising art, archaeology, anthropology, prehistory and natural history antiquities, objects and specimens. Lothal and Rojadi ornaments, Samalaji stone sculptures, Akota bronzes, Jain wooden temple, Mughal chariot, miniature paintings, The Hanza Nama painting, silver casket, Burmese Gung, Niro embroidery work, Chou bronze, Persian tile painting, marble sculpture (Temptation of Eve), dioramas showing Rabani skeletons of the blue whale are a few to mention in the museum.

Bibliography

1. A Brief Guide to the National Museum, National Museum, New Delhi 1989.
2. Chaudhury, P. D., and Das, M. C., Ancient Treasures of Assam, Directorate of Museums Assam, Guwahati, 1984.
3. Government Museum, Chennai, Brochure, 2003.
4. Indian Museum, General Guidebook, 1989.
5. Jeyaraj, V. Manual for the Conservation Gallery, Chennai, 2003.
6. Kalyan Kumar Chakravarty, A Museum to End Museums, Article, 1997.
7. Kannan, R. Manual to the Bronze Gallery, Chennai, 2003.
8. National Museum, New Delhi- An Introduction, Published by the National Museum, Janpath, New Delhi, 1960.
9. Nigam, M. L., Salar Jung Museum Guidebook, Hyderabad, 1990.
10. Personal Interview with Dr. Shyamal Kanti Chakravarthi, Director, Indian Museum, Kolkata, April 1998.
11. Salar Jung Museum A Perspective, Hyderabad, 1997.
12. Sharma, R. C., Hundred Years of Mathura Museum, Journal of Indian Museums, Vol. XXIX, 1973.
13. Sishu Bbavan Patrika, An Organ of Nehru Children's Museum, Vol. 20, No. 11, November 1997, Kolkata.
14. Shobitha Punja, Museums of India, the Guidebook Company Limited, Kong Kong, 1990.
15. State Museum Lucknow, Pamphlet.
16. The Periyar Science and Technology Centre, Published by the Rotary Club of Madras.

CHAPTER XVI

MUSEUM RELATED ORGANISATIONS

THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION - (UNESCO)

UNESCO was founded in 1946, in the aftermath of two devastating world wars, for the purpose of advancing, through the educational and scientific and cultural relations of the people of the world, the objectives of international peace and the common welfare of mankind. UNESCO's specific mission is to lay the foundation for a lasting peace and equitable development. This is done by focusing on the development of human resources-both men and women-promoting values of freedom, dignity and justice, and fostering access to and sharing of knowledge.

UNESCO has 18 Member States. The Executive Board comprising 51 members supervises the programme's implementation by UNESCO's Secretariat. Headquartered in Paris, UNESCO has 56 field offices throughout the world. UNESCO is funded by its member states. Although not a large funding body, it does help to mobilise resources from the international community and donor agencies.

The New Delhi office, established in 1948, was UNESCO's first decentralised office in Asia. This office covers countries of South and Central Asia, including Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Mongolia, Myanmar, Nepal, Pakistan and Sri Lanka. Initially envisaged to cover science and technology, UNESCO, New Delhi, in keeping with the organisation's policy of decentralisation, has expanded its activities to cover education, culture and communication.

Cultural Activities

UNESCO concentrates on:

1. Conservation and protection of the world's heritage;
2. Drawing up a frame work of international law in the areas of standard setting, exchange of information, training of specialised personnel and technical assistance for safeguarding operations;
3. Responding to emergencies and damage caused by natural disasters or conflicts;
4. Conserving and revitalising intangible heritage (oral traditions, languages, performing arts etc.);
5. Helping ensure that the heritage is more fully integrated into the economic and social life of the community.
6. Improving heritage education;
7. Promoting creativity by encouraging free circulation of cultural goods and improving the status of creative artistes.

The UNESCO office at New Delhi does the following activities:

1. Publishes Newsletters, reports and books.
2. Provides bibliographic information for researchers, and books of interlibrary loan on request.
3. Retrieves information from CD ROM and UNESCO database.
4. Promotes sale and distribution of books
5. Participates in book fairs.

Contact Address

Director, UNESCO, 8, Poorvi Marg, Vasant Vihar, New Delhi-110 057.

INTERNATIONAL COUNCIL OF MUSEUMS (ICOM)

The International Council of Museums (ICOM) is an international organisation of museums and museum professionals which is committed to the conservation, continuation and communication to society of the world's natural and cultural heritage, present and future, tangible and intangible. In this capacity it maintains close consultative and co-operative relations with UNESCO, ICOMOS, and ICCROM and other national, regional, or international, inter governmental or non-governmental organisations, with the authorities responsible for museums and with specialists of other disciplines.

ICOM stands for the late Chauncey J. Hamlin, President of the Buffalo Museum of Science, U.S.A, formed the International Council of Museums in 1946 as a professional non-governmental organisation. In 1947, fifteen members from each country, sixteen nations participated in the Interim conference held in Mexico. This was the beginning of the ICOM. In 1948 fifty-three nations had organised national committees. Following a major reform in 1974 membership of ICOM was changed so that all museum staff could participate which provide a forum for the discussion of specialist matters and assist in formulating Organisation for Museum affairs by UNESCO to which it provides professional advice, aided by a jointly operated documentation centre at its headquarters in Paris. ICOM has become more involved in the implementation of UNESCO projects.

The principal sources of ICOM action are the Executive Committee, the Advisory Board, the Secretariat, the national and International Committees, the UNESCO-ICOM Documentation Centre and Bulletin ICOM News, published four times a year. Through its National Committees, ICOM co-ordinates a vast international effort between all countries towards a thorough and progressive transformation of the concept of museums; towards the modernisation and expansion of its educational and cultural activities; towards the preservation of the cultural Heritage. ICOM organises occasional meetings and exchanges views between museologists from various countries through its International Committee. The out come of such meetings is published, the intermediaries of ICOM, and UNESCO.

The Executive Committee of the ICOM is the Steering Committee of the ICOM. It works in close collaboration with the members of the Advisory Board. Recommendations from the Board are studied by the committee, and often result in numerous meeting, survey, missions

and study grants, which are among the greatest achievements of ICOM. Under the control of the Director of ICOM, with the help of the Secretariat sees that the international activities are carried out properly. The Secretariat has the following four sections:

1. Membership – enrolments and services to members,
2. Information – documentation, publications and public relations,
3. Programmes – meetings and major projects,
4. Co-ordination – national sector, regional sector and international sector and
5. Administration – accounts, personnel and administrative matters.

The activities and progress of museum throughout the globe are observed, analysed and catalogued by the UNESCO-ICOM Documentation Centre. This centre now has the largest existing collection of museum documentation, and its card index systems are an inexhaustible supply of information on all museum matters. The ICOM News is the link between the museums of the world and permanent bodies of ICOM.

Today this is a net work of more than 20,000 institutions and professionals spread out over five continents over 140 Countries. It has 29 International Committees, 116 National Committees and 14 Affiliated Organisations. The International Council of Museums established the ICOM Regional Agency in Asia in 1967 at the Sapru House Annexe, Barakhamba Road, New Delhi, as a pilot project to survey Museum development in some Asian countries, especially those of South and South East Asia. By this, countries like India, Ceylon, Nepal, Thailand, Malaysia, Burma, Pakistan, Indonesia and Singapore have been greatly benefited.

THE INTERNATIONAL CENTRE FOR THE STUDY OF THE PRESERVATION AND RESTORATION OF CULTURAL PROPERTY (ICCRUM)

The International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCRUM) is an international, intergovernmental organization established in 1959. Organized under the auspices of UNESCO, ICCROM is an independent body currently consisting of 93 member nations and various associate institutions. With headquarters in the Opizio di San Michele, Rome, it serves as a research and training center and as a clearing house for the exchange of conservation information among specialists from all nations.

Concerned with the scientific and technical problems of cultural conservation, ICCROM collects and circulates information, institutes and coordinates research, and assists in training researchers and technicians and in raising the standard of restoration work. ICCROM has established itself as a leading international preservation institution.

The principal responsibility for guiding United States membership in ICCROM rests with the Advisory Council on Historic Preservation. The National Historic Preservation Act of 1966 was amended on May 9, 1970 [84 stat.204] to allow membership in ICCROM, and formal affiliations became effective on January 20, 1971.

ICCROM Programs

In fulfilling its responsibilities to assist in training research workers and technicians, ICCROM offers a wide range of training courses at its headquarters in Rome and elsewhere. These courses focus on the conservation of sites, buildings, and artifacts of cultural and historical importance. Course participants, who include architects, urban planners, archeologists, art historians, engineers, conservators, scientists, and museum curators, are carefully selected so that they are actively engaged in conservation work and training in their own countries whenever possible.

Council members hold a jury to rank U.S. citizens' applications for two of ICCROM's long courses open to U.S. citizens, *Architectural Heritage and Historic Structures* and *International Workshop on Integrated Territorial and Urban Conservation*, held in Rome in alternate years.

ARCHITECTURAL HERITAGE AND HISTORIC STRUCTURES (ARC)

Held for 12 to 14 weeks, *ARC* offers a platform for exchanging information and experience, discussing state-of-the-art approaches and trends through a postgraduate refresher forum. Topics include issues and concerns of architectural heritage conservation and subjects of current debate and research, with a stress on principles, methodologies, science, ethics, and an international, interdisciplinary approach.

The course also covers issues emerging as new responsibilities and competencies of the profession. The course, composed of modules, is open to either full- or short-term participants. Candidates for the course are mid-career professionals involved in training or practice, including architects, civil engineers, archeologists, and art historians, and who are potential disseminators of knowledge and skills and are influential on national or regional developments relevant to the profession and heritage concerned.

INTERNATIONAL WORKSHOP ON INTEGRATED TERRITORIAL AND URBAN CONSERVATION (ITUC)

ITUC, a six-and-a-half-week course, integrates participants' contributions and experience to guide them in developing syntheses around appropriate responses to contemporary issues and challenges. The workshop is designed to equip participants with skills in human negotiation, facilitation, conflict resolution, and communication that the workshop views as the keys to effective integrated management of historic areas. The target group for ITUC includes planners, architects, engineers, historians, archeologists, geographers, urban designers, landscape architects, economists, lawyers, sociologists, administrators, trainers/educators, and others whose decisions have a large impact on heritage values.

INTERNATIONAL COUNCIL OF MONUMENTS AND SITES (ICOMOS)

Name and Headquarters

An association established under the name of the INTERNATIONAL COUNCIL ON MONUMENTS AND SITES, is designated by the initials ICOMOS.

ICOMOS is an international non-governmental organisation of professionals, dedicated to the conservation of the world's historic monuments and sites.

The organisation was founded in 1965, as a result of the international adoption of the Charter for the Conservation and Restoration of Monuments and Sites in Venice in 1964. It has National Committees in over 107 countries.

The location of the headquarters of ICOMOS is at Paris. It may be changed by a decision of the General Assembly.

Definitions

The term "monument" shall include all structures (together with their settings and pertinent fixtures and contents) which are of value from the historical, artistic, architectural, scientific or ethnological point of view. This definition shall include works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and all combinations of such features.

- (a) The term "group of buildings" shall include all groups of separate or connected buildings and their surroundings, whether urban or rural, which, because of their architecture, their homogeneity or their place in the landscape, are of value from the historical, artistic, scientific, social or ethnological point of view.
- (b) The term "site" shall include all topographical areas and landscapes, the works of man or the combined works of nature and of man, including historic parks and gardens, which are of value from the archaeological, historical, aesthetic, ethnological or anthropological point of view.
- (c) The terms "monument", "site", and "group of buildings" shall not include :
 - museum collections housed in monuments- archaeological collections preserved in museums or exhibited at archaeological or historic site museums,
 - open-air museums.

Aims and Activities

ICOMOS shall be the international organisation concerned with furthering the conservation, protection, rehabilitation and enhancement of monuments, groups of buildings and sites, on the international level.

ICOMOS shall:

- (a) Provide a mechanism for linking public authorities, institutions and individuals concerned with the conservation of monuments, groups of buildings and sites, and ensure their representation with international organisations;

- (b) Gather, study and disseminate information concerning principles, techniques and policies for the conservation, protection, rehabilitation and enhancement of monuments, groups of buildings and sites;
- (c) Co-operate at national and international levels in the creation and development of documentation centres dealing with the conservation and protection of monuments, groups of buildings and sites, and with the study and practice of traditional building techniques;
- (d) Encourage the adoption and implementation of international recommendations concerning monuments, groups of buildings and sites. Its mission is to be the world's pre-eminent police organisation in support of all organisations, authorities and services whose mission is preventing detecting and suppressing crime.
- (e) Co-operate in the preparation of training programmes for specialists in the conservation, protection and enhancement of monuments, groups of buildings and sites;
- (f) Establish and maintain close co-operation with UNESCO, the International Centre for the Study of the Preservation and Restoration of Cultural Property, Rome, regional conservation centres sponsored by UNESCO, and other international or regional institutions and organisations pursuing similar goals; and
- (g) Encourage and instigate other activities consistent with these statutes.

THE INTERNATIONAL POLICE CO-OPERATION ORGANISATION (INTERPOL)

INTERPOL exists to help create a safer world. The International Police Co-operation Organisation (Interpol) aims to guarantee and develop broad mutual assistance between all criminal police authorities within the framework of existing laws in different countries and in the spirit of the Universal Declaration of Human Rights and to establish and develop institutions capable of providing an effective contribution to the prevention and suppression of common law offences. In this context, Interpol created a database a number of years ago, which lists stolen works of art, which have been reported to the police in the different member countries?

INTERPOL has disseminated information pertaining to cultural property since 1947, focusing on the publication and distribution of international stolen property notices; maintaining a computerized cultural property database; and tracking modus operandi information which includes individuals and/or businesses suspected of trafficking in, receiving, or smuggling cultural property.

INTERPOL Stolen Property Notices contain descriptions and photographs of stolen, seized and/or suspect cultural property reported to the INTERPOL Secretariat General by an INTERPOL member country. The Notices receive worldwide distribution to UNESCO - the United Nations Educational, Scientific and Cultural Organization; ICOM - the International Council of Museums; WCO - the World Customs Organization; as well as to all the INTERPOL member countries, which distribute the Notices to Police Forces, Customs Services, Museums, Art Dealers and others.

The U.S. National Central Bureau of INTERPOL also maintains a computerized cultural property database and routinely forwards cultural property information to various law enforcement agencies, the 55 USNCB State Liaison Offices, and art organizations throughout

the United States. In addition, the USNCB provides cultural property reports received from U.S. law enforcement agencies to the INTERPOL Secretariat General so that an international stolen property notice can be issued.

The Secretariat General publishes a special bi-annual bulletin, *The Wanted Works of Art*, to promote greater awareness of cultural property theft.

Only trafficking in illicit narcotics, money laundering, and arms trafficking exceeds the annual dollar value of art and cultural property theft.

INTERPOL is committed to combating cultural property crime, and preserving national heritages, through mutual cooperation and rapid information exchange.

The U.S. National Central Bureau is prohibited from processing requests from individuals and organizations, other than law enforcement entities.

To report the loss or theft of fine art or other cultural property, contact your state or local police, or the FBI. Provide as complete a physical description as possible, including any numbers, trademarks, or other markings; color photograph(s); circumstances of loss or theft; value of the item; history of the item if relevant; and any other pertinent information available.

Police recommend using the Getty Object ID Checklist to describe lost or stolen art. This is the standard method developed by the Getty Information Institute. Please tell the police if you want the loss or theft reported to the FBI or to INTERPOL on your behalf.

If the fight against the illegal traffic in works of art is to be effective, information must therefore be circulated as widely as possible. The international stolen works of art notices currently published by INTERPOL meet these needs, but their circulation is limited and it is now essential to make a wider public aware of the problem.

In fact, Article 4 (4) of the Convention provides that “in determining whether the possessor exercised due diligence, regard shall be had to all the circumstances of the acquisition, including the character of the parties, the price paid, whether the possessor consulted any reasonably accessible register of stolen cultural objects, and any other relevant information and documentation, which it could reasonably have obtained, and whether the possessor consulted accessible agencies or took any other step that a reasonable person would have taken in the circumstances”.

U.S. Law Enforcement

Forward complete details of the loss or theft, including police report, to your INTERPOL State Liaison Office for forwarding to the INTERPOL-U.S. National Central Bureau. INTERPOL publishes an International Stolen Property Notice for a given item only if there are sufficient identification information and if the item is either of substantial commercial or cultural value, or were stolen under particularly serious circumstances.

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES (IUCN)

The World Conservation Union - a union of governments, government agencies, and non-governmental organisations working at the field and policy levels, together with scientists and experts, to protect nature and natural resources. Washington DC is the Office Headquarters of the World Conservation Union.

Traffic-actively monitors and investigates wildlife and endangered species trade and provides information gathered as a basis for effective conservation policies and programmes.

The World Conservation Monitoring Centre (WCMC) has for many years compiled the Red List for IUCN. This information resource is a result of long-term collaboration between countless individuals worldwide and many organisations, notably WCMC, IUCN and Bird Life International.

The Red List provides taxonomic, conservation status and distribution information on species that have been evaluated using the new IUCN Red List Category System. This system is designed to determine relative risk of extinction, and the main purpose of the Red List is to catalogue the species that are regarded as threatened at global level, ie. at risk of overall extinction.

The 1996 Red List also includes information on species that are categorised as Extinct or Extinct in the Wild; on the species that cannot be assessed because of insufficient data; and on certain species in the Lower Risk category.

The Red List is complemented by other sources, such as the IUCN Red Data Books, the Bird Life International list of threatened birds (*Birds to Watch*), the IUCN Species Survival Commission Action Plans, and a large number of national Red Data Books, all of which contain more detailed information.

Most of the category assessments have been made by IUCN Species Survival Commission, primarily by members of the taxonomic Specialist Groups; all birds have been covered by Bird Life International; other assessments and much taxonomic and distribution information has been provided by WCMC. Assessments of many species in USA were based on data supplied by The Nature Conservancy.

THE GETTY CONSERVATION INSTITUTE (GCI)

The Getty Conservation Institute (GCI) works internationally to advance the field of Conservation through scientific research, field projects, education and training, and the dissemination of information in various media. The Getty Conservation Institute, an operating program of the J. Paul Getty Trust, is committed to the preservation of cultural heritage worldwide. The office is situated at 401, Wilshire Boulevard, Suite 900; Santa Monica, CA 90401. Through scientific research, training, information exchange and special field projects, the Getty Conservation Institute promotes conservation of cultural property and seeks to increase public awareness of conservation's importance. The institute brings together specialists

from the arts and sciences to address the conservation need of museum collections, archaeological sites and historic buildings and sites.

The work of the institute encompasses the following activities like education and training, scientific research, information dissemination and documentation and special conservation field projects.

INTERNATIONAL COUNCIL OF BIODETERIORATION OF CULTURAL PROPERTY (ICBCP)

The International Council of Bio-deterioration of Cultural Property was registered on the 19th June 1995 with its registered office at the Indian Conservation Institute Lucknow and the Secretariat at the National Research Laboratory for Conservation of Cultural Property, Sector E/3, Aliganj Scheme, Lucknow-226 004. At present it has 47 members from various countries. The members are scientists, conservators, architects, archaeologists, environmental experts etc.

The main objectives of the Council is to meet, discuss and exchange views in order to promote multi-disciplinary approaches to the control of bio-deterioration of cultural and also for the upliftment of the preservation and restoration techniques.

The International Council of Bio-deterioration of Cultural Property has decided to publish a newsletter called ICBCP Newsletter twice a year. i.e. in April and October. Seminars are conducted and the proceedings are published.

INDIAN ORGANISATIONS

DEPARTMENT OF CULTURE

The Department of Culture is functioning under the Ministry of Human Resource Development of the Government of India. The department was set up in 1985. The department is mainly responsible for undertaking programmes and projects of preservation, encouragement and dissemination of various manifestations of creative activity-both past and present. The department is, thus, engaged in conservation of ancient monuments throughout the country, administration of libraries, museums and institutions in the field of Anthropology, Buddhist / Tibetan Studies; observing centenaries and anniversaries of eminent personalities; entering into cultural agreements with foreign countries etc.

The department has two attached offices viz. Archaeological Survey of India, New Delhi and the National Archives of India, New Delhi; six subordinate offices and is also administering 26 autonomous institutions.

Schemes for State Governments and Union Territory Organisations by the Culture Department

Financial assistance is provided to State Governments and Union territory Administrations for the construction of multi-purpose cultural complexes, rural libraries and to the archival repositories. The scheme envisages a sum of Rs. 10 Crores as a one time grant by the Government of India to the concerned autonomous body, set up by the State Governments for this purpose. Recurring expenditure, is however to be met by the State Governments from their own sources.

Grant-in-aid Schemes for Voluntary Cultural Organisations

The Department of Culture in the Ministry of Human Resource Development of the Government of India has been implementing a number of Grant-in-aid schemes for voluntary cultural organisations to supplement the governmental effort in promotion, preservation, dissemination and development of art and culture.

Schemes for Scholarships and Fellowships for Artists

The Department of Culture has been implementing a few schemes under which scholarships / fellowships are given to artists in various age groups. A large number of artists benefit every year from these schemes.

NATIONAL ARCHIVES OF INDIA

The National Archives of India, set up in 1891 as the Imperial Record Department, is the central repository of non-current records of enduring value of the Government of India. It is an attached office of the Department of Culture. Apart from providing information to various Ministers / Departments, it also provides facilities for historical research and promotes training

in archival science in the country. The National Archives of India also has in its custody private papers of eminent Indians microfilm records of Indian interests, acquired from abroad to supplement its archival holdings. Director General of Archives is the head.

Museums

There are few National Museums all over the country. The National museum, New Delhi is a subordinate office under the Department of Culture. Indian Museum, Kolkata, Salar Jung Museum, Hyderabad, National Gallery of Modern Art, New Delhi, Allahabad Museum, Allahabad, Museum of Mankind, Bhopal, Chatrapati Sivaji Museum, Mumbai are some of the national museums in India.

National Co-ordination Committee for Museums

The Department of Culture, Government of India conducted a meeting for the State Culture Secretaries, Directors of Museums and museum experts from 26th to 28th August 1998, at the National Museum Institute, New Delhi and as a result of this a National Co-ordination Committee for Museums was formed. The main aim of this committee is to advice the government in the administration of the museums in the country.

In order to assist the National Co-ordination Committee for Museums four Core-groups were formed. They are

1. Documentation
2. Training
3. Educational Activities and
4. Conservation.

Each group discusses on the various subjects pertaining to them and advises the National Co-ordination Committee on Museums.

ARCHAEOLOGICAL SURVEY OF INDIA, NEW DELHI

The Archaeological Survey of India, an attached office of the Department of Culture, came into being in 1861. It is engaged in preservation, conservation and environmental development of centrally protected monuments and sites, exploration and excavation of ancient sites, conducting specialised studies on inscriptions and various phases of Indian architecture and also maintenance of archaeological museums.

The Archaeological Survey of India is under the overall charge of a Director General of Archaeology with head quarters at New Delhi. It discharges its responsibilities through seventeen circles at Aurangabad, Bangalore, Baroda, Bhopal, Bhubaneswar, Kolkata, Chandigarh, Chennai, Guwahati, Hyderabad, Delhi, Guwahati, Hyderabad, Jaipur, Lucknow, Patna, Srinagar, Trichur, Trivandrum, two mini Circles, five excavation branches, a prehistory branch, a service branch, a horticulture branch, an epigraphy branch, a chemical branch, an antiquities branch and a museum branch.

NATIONAL MISSION FOR MANUSCRIPTS, NEW DELHI

National Mission for Manuscripts is one of the wings of the Department of Culture established in order to protect the manuscripts culture of this country. The National Mission for Manuscripts was established in New Delhi in the Indira Gandhi National Centre for the Arts, New Delhi in February 2003.

The National Mission for Manuscripts, New Delhi seeks to identify manuscript collections in India and abroad; to document them and prepare a national register; to facilitate conservation of existing manuscript wealth; to promote ready access to manuscripts through digitization and publication; to support scholarship and research through out the country.

In order to conserve the vast collection of manuscripts, one should be aware of conservation principles. There are hundreds of manuscripts preservation centres, libraries etc., across the country. But most of these institutions of the country are not having adequate conservation awareness. As part of the activities of the National Mission for Manuscripts, the Manuscript Conservation Centres and Manuscript Resource Centres are expected to implement preventive conservation steps for enhancing the longevity of manuscript collections and impart training. Training custodians of collections to practice preventive conservation requires certain approaches and skills. The workshops conducted aim to develop further the already existing expertise of the participants in teaching preventive conservation. Manuscripts are treated by the centres.

It has established 24 Manuscripts Resource Centres and 16 Manuscripts Conservation Centres through out this country.

ANTHROPOLOGICAL SURVEY OF INDIA, KOLKATA

Anthropological Survey of India under the Department of Culture, Ministry of Human Resource Development is a premier research institute for anthropological research in bio-cultural studies and it is recognised as one of the most advanced centres for research and training in anthropology and allied disciplines. The broad objectives are:

1. To take up anthropological study of the people of India;
2. To continue with the studies of scheduled tribes and other weaker sections;
3. To reflect in its research programme the priorities set by the Government of India in regard to conservation of environment, welfare of women and children, mother and child care, development of physical fitness and nutritional status and poverty alleviation;
4. To take steps to salvage and preserve cultural artefacts faced with the threat of extinction and those which even otherwise need to be preserved; and
5. To study and promote awareness of the rich and composite culture of the country and of the contribution to this Heritage.

Set up

The Anthropological Survey of India was established in 1945 at Benaras. From 1948 onwards the head office is in Kolkata. The regional centres are at Andaman and Nicobar, Regional

Centre and Port Blair (1951), North-East Regional Centre at Shillong (1953), Central Regional Centre at Nagpur (1955), Southern Regional Centre at Mysore (1960), North-West Regional Centre at Dehradun (1969), Western Regional Centre at Udaipur (1975), Eastern Regional Centre at Kolkata (1976). One sub-Regional Centre at Jodhpur (1972), a camp office in New Delhi (1984). One permanent field station at Ranchi, seven field-stations one each at Andhra Pradesh, Arunachal Pradesh, Himachal Pradesh, Jammu and Kashmir, Manipur, Pondicherry and Sagar. The field stations function under the administrative control of the nearest regional centre.

The Survey has well defined research infrastructure under its research wings. Under physical anthropology human biology, morphology, palaeoanthropology, bio-chemistry, growth and radiology statistics and electronic data processing are dealt with. Under cultural anthropology division, sections like social anthropology, linguistics, folklore, psychology, human ecology and museum are included. Programme Management Information, Cleaning House Unit, Library, Cine Unit, Photographic Unit, Sound, Basic Data Archive, Printing and publication distribution are technical sections. The School of Anthropology, which imparts in-service training to research personnel, is considered as an important part of the Survey's academic activities.

Collections

Over the years the Survey has accumulated a precious collection of both ancient and modern human skeletal remains of India on the one hand and rich documentation of museum artefacts, photographs and cine films on the other. In the area of cultural dissemination the Survey has been playing a very important role in organising thematic and educative exhibitions and also in publishing the valued research materials. The Survey also collaborates with different university departments, tribal institutions and other academic bodies in research and dissemination activities.

Fellowship Programmes

The Anthropological Survey of India extends financial assistance and other academic facilities for carrying out research activities to young and experienced scholars all over India through its fellowship programmes. Under this Survey twenty six research personnel are engaged as Junior Research Fellows, Senior Research Fellows, Post Doctoral Fellows, Visiting Fellows etc. .

Museum

Zonal Anthropological Museums are attached to the Regional Centres besides the Central Museum at Kolkata.

GEOLOGICAL SURVEY OF INDIA, KOLKATA

The Geological Survey of India is one of the oldest premier geo-scientific organisations in the world. The important functions of the Geological Survey of India are, development of mineral, energy and water resources, management of natural hazards due to earthquake, flood, landslide,

volcanism and protection of environment, surface and sub-surface investigation for civil engineering, irrigation as well as power projects, glaciological studies etc. Marine service in the Exclusive Economic Zone of India, Airborne survey and expeditions to Antarctica are other areas of activity of the organisation.

The Geological Survey of India with Kolkata as its Central Headquarters functions under the Ministry of Mines. There are six regions, viz. Northern, Northeastern, southern, Eastern, Western and Central regions, three specialised Wings viz. Airborne Mineral Survey and Exploration, Coal and Marine wings and a training institute. The Geological Survey of India functions through its establishments located in thirty-one cities or towns spread through out the country.

Set Up

The Geological Survey of India is under the Ministry of Mines and is headed by the Director General. Deputy Director Generals head the regional offices. There are four Operations (OP) wings. The OP I has the responsibilities like planning, programming and monitoring laboratories at Kolkata Head quarters. The OP II has the responsibilities like Human Resource Development, board of Management, personnel, Cadre Management Stores, Engineering and Transport, Coordination with specialised wings. The OP III is the international wing. The OP IV has the responsibility of Map and Cartography, publication and photo-geology and remote sensing. The staff is classified as Scientific-main, Scientific-supportive, Technical stream and Administration. The total staff of the Geological Survey of India has a staff grand total of over 16,740.

National Geological Parks

The Geological Survey of India has on its charter the preservation of features of unique geological interest of national or international significance. These if not preserved and protected, are likely to be subjected to human vandalism and lost. In pursuance of this, the Geological Survey of India has set up Geological Monuments not only to preserve but high light their scientific importance to the scientific community at large. The setting up of a National Park at Thiruvakkarai, Cuddalore District, Tamil Nadu, by the Geological Survey of India in 1951 to preserve the rare and spectacularly preserved fossil tree trunks into a National Fossil Park was a truly precursor to the current programmes of the Institution of Geological Monuments for pillow lavas in the Kolar Gold Field area and the Peninsular Gneiss in the Lal Bagh Gardens, Bangalore, Karnataka, in 1974-75. The Geological Survey of India has displayed them at important parks and gardens to attract the attention of the public. Such displays in the form of Fossil Enclosures set up at the Children's Corner, Guindy Park, Chennai; National History Museum, Kerala; Nehru Zoological Park, Hyderabad, Andhra Pradesh; Cubbon Park, Bangalore; National Museum, New Delhi; The Government Museum, Chennai have been found to be very popular and educative.

A National Geological Monument for charnockite, an unique rock formation found in almost all hard rock area of the world, was erected on the St. Thomas Mount at Chennai Tamil Nadu, in May 1975, by the Geological Survey of India.

Development of Museums

The Geological Survey of India supplies sets of important rocks, minerals and fossils to various institutions to be displayed in their museums. To promote geological awareness to the public, the Geological Survey of India has also been participating in popular and scientific exhibitions in various parts of India.

BOTANICAL SURVEY OF INDIA, KOLKATA

Botanical Survey of India is functioning under the Department of Environment of the Government of India. The Botanical Survey of India is engaged in the survey, study, utilization and conservation of the plant wealth of the country. The Botanical Survey of India was established in 1890 for exploring the plant wealth of our country with Sir George King, the then Superintendent of the Royal Botanic Garden, Sibpur, as the ex-officio Director. The Directorate of the Survey is located at the Indian Botanic Garden, Howrah, and is headed by a Director. Besides the Directorate there are the Central Botanic Laboratory, Central National Herbarium and the Indian Botanic Garden at Howrah. The nine circles are located as follows:

- Southern Circle, Coimbatore
- Northern Circle, Dehra Dun
- Eastern Circle, Shillong
- Western Circle, Pune
- Central Circle, Allahabad
- Arid Zone Circle, Jodhpur
- Andaman and Nicobar Circle, Port Blair
- Sikkim-Himalayas Circle, Gangtok
- Arunachal Field Station, New Itanagar

There are well developed herbaria, library, drawing and photographic sections in all the major Circle Offices except in Gangtok and New Itanagar, where they are being developed.

Objectives

The main objectives of the Botanical Survey of India are the following:

- Survey of plant sources of the country
- Development of Central National Herbarium and the regional Herbaria as repositories
- Development of the India Botanic Garden etc.
- Development of Central Botanical Laboratory and Botanical Section of the Indian Museum for experimental studies on plants and popularising their role in our lives.
- Assessment and care of threatened plants and studies on little known or new users of plants particularly among rural and tribal societies.

Activities

The activities of the Survey are large. It has made plant collections through numerous botanical explorations and collected more than 300 000 field numbers of plants. The nine herbaria have over 2,000,000 specimens. The main programme of the Survey is the preparation of a detailed account of the plant resources of the country in the form of national, district and regional floras. It has started publishing the new Flora of India in the form of Facsimiles for the higher plants. Lower plants like lichens, mosses and ferns are also important constituents of our natural flora and are being studied.

ZOOLOGICAL SURVEY OF INDIA

The Zoological Survey of India is functioning under the Department of Environment, Government of India. Zoological Survey of India was established on the 1st July 1916, for the study of the distribution of animal species occurring in this country and to provide the description to facilitate identification. The head quarters at Kolkata. It has got 16 regional and field stations throughout India. The 16 stations are located as follows:

- Eastern Regional Station, Shillong, Meghalaya.
- Western Regional Station, Pune, Maharashtra.
- Central Regional Station, Jabalpur, Madhya Pradesh.
- Desert Regional Station, Jodhpur, Rajasthan.
- Northern Regional Station, Dehradun, Uttar Pradesh.
- Southern Regional Station, Chennai, Tamil Nadu.
- Gangetic Plains Regional Station, Patna, Bihar.
- High Altitude Zoology Field Station, Solan, Himachal Pradesh.
- Marine Biological Station, Chennai, Tamil Nadu.
- Andaman Nicobar Regional Station, Port Blair, Andaman.
- Fresh Water Biological Station, Hyderabad, Andhra Pradesh.
- Sunderban Field Research Station, Canning, West Bengal.
- Estuarine Research Station, Berhampur, Orissa.
- Western Ghats Field Station, Kozhikode, Kerala.
- Arunachal Pradesh Field Station, New Itanagar, Arunachal Pradesh.
- Marine Aquarium-cum-Research Centre, Digha, West Bengal.

The Objectives of the Survey are:

- Exploration and survey of faunal resources,
- Taxonomic studies, status survey of endangered species,
- Publication of results in "Fauna of India" series and other books and journals,
- Maintenance and development of National Zoological Collections,
- Advisory, information, referral and library services,
- Maintenance of museums at head quarters and regional stations and
- Environmental impact studies.

Set up

The Zoological Survey of India has on its staff, specialists of national and international repute on different groups of animals. A Director heads the Zoological Survey of India. Two additional directors are in charge of 8 stations and field stations through out India. The Deputy Directors are Officer-in-charge of the stations and field stations.

Activities

The activities of the Zoological Survey of India are so broad. It serves the nation through zoology, agriculture, forestry, fisheries, conservation, environment and wild life, public health and hygiene. It serves through identification and Technical Advisory Services, training in entomology and taxidermy, consultancy service to IBWL, Zoological parks, animal husbandry, health & hygiene, foreign trade, maintains Zoological Galleries in Indian Museum, Kolkata. It explores faunal wealth of India. It publishes the records of Zoological Survey of India, memoirs of Zoological Survey of India, occasional and special publications, handbooks, fauna of India, bibliography of Indian Zoology, annual reports etc.

NATIONAL COUNCIL FOR SCIENCE MUSEUMS, KOLKATA

The National council of Science Museums, an autonomous organisation under the Department of Culture, was set up in 1978 and is primarily engaged in the task of popularising science and technology among the students in particular and the masses in general through wide range of interactive programmes and activities. It administers 21 science museums / centres / parks through out the country.

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING (NCERT), NEW DELHI

If you wish to educate your children, educate their parents first. This is the motto of NCERT. This scheme aims at educating the teachers in the fundamentals of our culture and traditions, and our arts and crafts, so that they in turn may transmit their knowledge to their pupils in proper perspective and generate their interest and pride in our past, titillate their spirit of inquiry, make better citizens of them and promote national integration at the grass roots level.

The ultimate objective is to cover every secondary school or college or educational institution in India, gradually and provide each with a 'Mini Museum' of 20 plaster cast copies of sculptures through the ages, a mini-library of a book on birds and animals in India, about 10 cyclostyled books of lectures on the different subjects, besides a set of cassettes, recorded with 10 hours lecture demonstrations, a set of 500 slides of our art and architecture, a tape recorder and a projector respectively.

NATIONAL RESEARCH LABORATORY FOR THE CONSERVATION OF CULTURAL PROPERTY, LUCKNOW

The National Research Laboratory for the Conservation of Cultural Property, Lucknow, is a subordinate office under the Department of Culture carrying out fundamental research in conservation techniques through short term and long term research projects. It was established in 1976 and was shifted from New Delhi to Lucknow in 1978 and finally to its present address, Sector E, Aliganj Scheme, Nirala Nagar, Lucknow in 1987. It also provides technical assistance to museums, archaeological departments and takes up conservation jobs on turnkey basis.

National Research Laboratory for Conservation of Cultural Property has acquired a wide variety of advanced sophisticated instruments required for various areas of research and conservation. It has undertaken a number of long-term and short-term research and conservation projects. National Research Laboratory for the Conservation of Cultural Property conducts various training courses, workshops and conferences in this field in collaboration with many national and international organisations regularly. From time to time, technical notes, special monographs, articles, books and booklets related to various problems of conservation are also brought out for the benefit of other institutions in the country.

Regional Conservation Laboratory, Siddharth Nagar, Mysore

The Regional Conservation Laboratory, Mysore was established in 1987 to cater to the needs of the southern region. This laboratory has facilities for the examination and conservation of organic as well as inorganic materials and has a good liaison with different institutions in this area. There is a proposal to set up a regional laboratory at Kolkata to help those organisations in West Bengal, Orissa, Bihar, Meghalaya, Manipur, Sikkim etc. It is headed by a Project Officer.

INDIAN COUNCIL OF HISTORICAL RESEARCH, NEW DELHI

The Indian council of Historical Research, New Delhi is an autonomous body established by the Government of India with a view of providing funds for historical research and to foster objective and scientific writing of history. The broad aims of the Council are to bring historians together and provide a forum for exchange of views among them; to sponsor research programmes / projects and assist institutions and organisations engaged in historical research by students, teachers and other research workers; to organise and support seminars, workshops and conferences for the promotion and utilisation of historical research; and to develop and support centres for documentation and library services oriented towards historical research. The Council has taken a broad view of history so as to include in its fold archaeology, socio-economic formations and allied subjects.

Fellowships

A major means for supporting historical research is the award of various categories of fellowships to individual scholars, who propose to work on particular projects approved by the Council.

The various categories of fellowships awarded to histrionic resident in India are:

1. Junior Research Fellowship
2. Post-doctoral Fellowship
3. Pay-protection Fellowship
4. Senior Fellowship
5. National Fellowship

Fellowships are also awarded to foreign scholars who may wish to undertake research in India.

Research Fellowships

Research projects on specific topics in any branch of history involving individual or teamwork are eligible for financial assistance by the Council. For an approved project a sum of Rs. 50,000 can be sanctioned for two years.

Study and Travel Grants

A maximum grant of Rs. 7,000 is sanctioned to scholars for collecting materials from different parts of India only towards travel cost.

Foreign Travel Grant

Travel and maintenance grants are also available to enable a limited number of Indian historians to study archives, museums, or libraries abroad or take part in seminars or conferences abroad.

Assistance to Professional Organisations of Historians

The Council extends assistance to professional organisations of historians, functioning at the national and regional levels, for the purpose of holding workshops, symposia and conference on subjects of historical significance.

Publication Subsidy

The council gives financial assistance to the following categories:

1. Doctoral thesis
2. Books based on research projects financed by the Indian Council of Historical Research.
3. Other research studies / monographs or source materials nor financed by the Indian Council of Historical Research
4. Critically edited/ translated source materials
5. Journals, and proceedings of conferences, seminars, etc.
6. Bibliographical and documentation works.

Any scholar interested in making use of its various grants-in-aid schemes or other facilities and subsidies may apply to the Indian Council of Historical Research at any time through the institution where he / she is pursuing research independently.

MUSEUM ASSOCIATION OF INDIA (MAI), NEW DELHI

The Museum Association of India was founded in 1944. Now it has completed over 54 years in the services of Indian museums and museum personnel. It has got honorary members, life members, supporting members, institutional members, etc. There are many regional organisations. The Museum Association of India serves as the link between such associations and helps them in co-ordinating activities.

The aim of the Museum Association of India is to further the cause of museums in India by making them popular with the public by providing new ideas through seminars and publications and by promoting mutual appreciation of problems of each others by holding museum conferences. The Association has also taken up the responsibility of representing cause of museums and their personnel before pay Commission and other such organisations. The Museum Association of India has launched the Museum Week Celebrations through out the country to popularise the museums.

The Museum Association of India is regularly publishing the Journal of Indian Museums and Museum's Newsletter. The Journal of Indian Museums discusses the practical problems faced by the Curators in their day-to-day work. The journal also publishes a column called Recent Acquisitions, which provides an opportunity for the smaller museums to publicise their objects.

Thus the Museum Association of India has become a strong organisation of persons in museum profession serving in the cause of museum community. Its membership is open to all persons working in museums or otherwise connected with museum work.

NEHRU TRUST FOR THE INDIAN COLLECTIONS AT THE VICTORIA AND ALBERT MUSEUM, NEW DELHI

The Nehru Trust for Indian Collection at the Victoria and Albert Museum was constituted in India in conjunction with the setting up of the Nehru Gallery of Indian Art at the Victoria and Albert Museum, London, England in November 1990. In pursuance of its objectives-to make the collections at the Victoria and Albert Museum more generally accessible and to encourage the display study and preservations of India's art and cultural heritage-the Trust has launched a number of awards to assist individual scholars and museum professional to extend their study, research or training or to participate in collaborative ventures in these fields. The Trust, in collaboration with the Charles Wallace India Trust, the Cambridge Commonwealth Trust and the Overseas Development Administration proposes to offer a number of different awards every year.

INDIAN ASSOCIATION FOR THE STUDY OF CONSERVATION OF CULTURAL PROPERTY IN INDIA (IASC)

The Indian Association for the Study of Conservation of Cultural Property was started in New Delhi to create a common platform for the conservation scientists, conservation chemists, conservators, architectural conservation engineers etc. Today it has got over 300 life members.

Aims and Objectives

The following are the aims and objectives of this organisation:

1. To provide a professional centre devoted to the cause of conservation and study of cultural property including historic, archaeological, ethnological, artistic, archival and other material in libraries, manuscript repositories and museums.
2. To arouse awareness among the masses of the need to save the cultural heritage in the country from destruction.
3. To co-ordinate the efforts of various centres and improve the knowledge of the methods of conservation of material of various types.
4. To ensure dissemination of technical knowledge and information related to conservation. To achieve this end, the Association would organise regular seminars and conferences, bring out appropriate publications and circulate information by other means.
5. To make efforts to maintain high standards in the practice of conservation.
6. To advise on all technical matters.
7. To maintain contact with other bodies abroad and in India, with similar aims and objectives, such as IIC, ICOM Committee for Museum Laboratories, the ICOMOS, Rome Centre, ICCROM, Indian National Commission and the Museum Association of India.
8. It brings out a journal called Conservation of Cultural Property India annually. This is the only journal in India, which caters the needs of the rapidly growing conservation field. The Association also publishes Conservation Newsletter in August every year. Besides these, it also publishes some books on special topics.
10. Its activities are popularised through the Website : www.iascindia.org

INDIAN NATIONAL TRUST FOR ART AND CULTURAL HERITAGE (INTACH) INDIAN CONSERVATION INSTITUTE

INTACH is a non-governmental organisation. The main aims and objectives of the Indian Conservation Institutes in India are:

1. To take up conservation and restoration of different types of objects of art including paintings on canvas, paper and other supports, bronzes and other metal artifacts, objects of wood and ivory, paper and palm-leaf manuscripts etc. the services rendered are charged on a reasonable, non-commercial basis with a view to making the centre self-sustaining.
2. Where objects are not available as in the case of mural paintings and stone sculptures, in temples and monuments, to undertake conservation projects at the site.
3. To render technical advice on conservation problems and to prepare conservation project reports.
4. To impart training in different branches of conservation. To conduct research on different artistic techniques in order to gain further knowledge about the pigments, media and other materials used.
5. To create awareness among the public about the need for conservation and the problems involved through periodical exhibitions, seminars and workshops.

The Indian Conservation Institute has its branches at Bangalore, Bhubaneswar, New Delhi, Rampur, Jaipur, Trissur etc.

Bibliography

1. Activities and Achievement of Geological Survey of India in Tamil Nadu and Pondicherry Since Independence, 1998.
Annual Report, 1996 and 1997, National Council of Museums, Kolkata. 1970-72.
2. Fossil Tree Trunk from the National Fossil Wood Park at Thiruvakkarai, Villupuram District, Tamil Nadu, Published by the Geological Survey of India.
3. Grace Morley, ICOM and Museums in Asia, Studies in Museology, Vol. VI-VIII,
4. ICCROM Newsletter, September 1997, International Centre for the Preservation and Restoration of Cultural Property, Italy.
5. Indian Council of Historical Research, Grants-in-aid, Schemes of the Council, New Delhi, 1988-89.
6. National Geological Monument, Charnockite, St. Thomas Mount, Madras.
7. www.achp.gov/act.html
8. www.icomos.statutes.htm
9. www.interpol.int

CHAPTER XVII

PARA MUSEUMS

Museums throughout the world grow very much. There are competitions between museums all over the world. They organise organisations parallel to the museums to support the museums. Museum as organisations are not able to survive without the support of organisations like Museum Society, Friends of the Museum, Museum Lovers Club, Cultural Forum, Museum Trust, Art Clubs, Neighbourhood Museum, Bal Bhavans, Lalit Kala Academies, Trekking Clubs, Cultural Centres and similar such art and other organisations. These are museum like as well as museum related institutions, often referred as paramuseums. They are becoming very popular because they are relevant to the contemporary needs of communities. The active participation of the members is part of the new relationship with the museum itself. It implies people's participation channels with the people always open.

Museum Society or Trust

The resources of the museums are limited. Therefore museums are going for forming museum societies. Government museums also are interested in the formation of Museum Societies. The National Museum, New Delhi has become a society, i.e. a deemed university. This augments the museums to take immediate steps to undertake many programmes in the museum. The Government Museum, Chennai is also planning to form a museum society in the near future. Private organisations either form a Society or a Trust. The private museums have invariably have formed Trust to run the museums. In the European countries private organisations start museums under the registration of Trusts and avoid tax from the Government.

Friends of the Museum

While most of the museums in the Europe going for organising the Friends of the Museum some of the museums are reluctant as the some of the Curators feel that the over-enthusiastic friends will be trying to dictate to the management how the museum should be run. There is concern over the amount of professional staff time, which can be absorbed in the management of organisation. The friends of the museum can be involved in various activities of the museum viz. Guide services, voluntary service in the collection sections and conservation units.

The Friends of the Museum Societies are given room for the running of the Society in the museum. The profit out of the society at times is used for the welfare of the museum staff and other activities. Many museums, particularly in the United States, Australia and Europe, form membership associations in their own localities. The members are generally known as the *Friends of the Museum*, whose subscription and gifts are of great financial help to the museums concerned. The members in return are allowed some privileges, such as free entry, a discount on the museum-publication and reproductions, invitations for special occasion etc. For example the Tate Friends enjoy a range of special privileges and contribute towards the purchase of works of art for the Gallery. The concessions to the Friends are

1. Free unlimited entry with guest to exhibitions
2. Concession on the purchase of the magazine of the gallery
3. Previews, events and art courses
4. Late at the Tate exclusive evening openings
5. Friends Room
6. 10% discount in the Tate Gallery Shop
7. Subscription to Tate exhibitions and Tate Events.

Museum Pen Friend Club

Museums can encourage starting Pen-friend Clubs in the museums by enrolling members. Pen friends can send publications of their museums to their friends in other states or countries and can exchange with them the publications. This will enrich the habit of collecting picture post cards, pamphlets, books etc., published by the museums and enlarge their mental horizon. The members of such a club should arrange get-together once a month and exchange view.

Museum Lovers Club

Many museums have encouraged the Museum Lovers Clubs in the museums. This is also similar to the Friends of the Museum Society. But it varies in its activity. The members of the Club help the museum authorities to collect antiquities, arrange programmes with the museum authorities for educating the mass. They give information about antiquities to the museum authorities so that the museum collection will be augmented. The author of the book organised clubs like this, which helped the Curator to collect more objects and information. The club members themselves helped the Curator to go along with the Curator for collection of objects, exploration, etc.

Cultural Forum

Many museums encourage Cultural Forum in the town/city where museums are located. Like-minded people join together and form this type of forums. Such forums join with the museums and coordinate with the authorities of the museum. In the Government Museum, Chennai the South Indian-Archaeological Society functions and the Secretary of the Society is the Curator for Archaeology of the museum. The Madras Coins Club was conducting many programmes in collaboration with the Government Museum, Chennai. The Historical and Cultural Centre at Erode was much helpful for the growth of the Government Museum, Erode. Similar forums are helping museums in various parts of India.

Trekkers Forum

Natural history museums and multipurpose museums can encourage starting Trekkers Forum, Nature Watchers Forum etc., in the museums. The members met regularly to go on tours and collect objects for the museum besides learning and enjoying the nature while learning new things about nature. This encourages public to have good relationship with the museum personnel and the museum activities.

Archaeological Society

Museums should also encourage the public to join in Archaeological Society which in turn help the museum to build up good relationship with the museum. The author had achieved a lot in having forums in the district museums and the members have greatly helped the museum to collect objects for the museum besides enriching their knowledge in the subject. There was a wholehearted involvement in the development of the museum in the service to the public.

Numismatic Society

Now a days many amateur numismatics have come up suddenly because of forums like Numismatic Society of India, Numismatic Society of South India, Madras Coins Society, Kongu Numismatic Society, Tiruchy Numismatic Society etc. The Numismatic Societies are bringing out their own publications. All these organisations are working mostly with museums and the work of the museums are augmented through these organisations. They conduct seminars, camps and many hundreds of members are involved in the preservation of coins of India and other countries.

Epigraphical Society of India

The Epigraphical Society of India and the Place Name Society of India are closely working together. Most of the museums are helped by these societies. These societies conduct seminars and the proceedings are published and have brought out many unknown truths to the society.

Philetalic Association

It is an association of persons who collect stamps. Philetelists have monthly meetings and the members arrange workshops, lecturers etc., in museums to popularise this subject.

Bibliography

1. Dwivedi, V. P., Educational Services in U.S. Museums and Lessons They Provide for India, Modern Museum, Ed. Smita J. Baxi and Dwivedi, V. P., Abhinav Publications, New Delhi, 1973.
2. Graham Carter, P., Educational Services, Manual of Curatorship, Ed. John M. A. Thompson and others, Butterworths, London, 1984.
3. Nigam, M. L., Fundamentals of Museology, Deva Publications, Hyderabad, 1985
4. Pant, G. N., Role of Museums in the Growth of Contemporary Arts, Journal of Indian Museums, Vol. XXXIX-L, 1993-94.
5. Satyamurti, S. T., My Recent Observations on European and American Museums, Studies in Museology, Vol. IX, 1973-74.
6. Tamil Nadu Museum Society, Government Museum, Chennai, 1996.
7. Sayad Rafiqah Sultana Ahmed and Sayad Afroz, Museums and Their Infrastructure, Journal of Indian Museums, Vol. XXXIX-L, 1993-94.

CHAPTER XVIII

LEGISLATIVE MEASURES

GLOBAL LEGISLATIVE MEASURES

Cultural properties are facing a lot of problems in all the countries. In order to arrest the illicit traffic, theft and vandalism of cultural properties different countries have enacted laws. Legislation began to be enacted from the beginning of the 19th Century.

France was the first country, which enacted a law in 1809 connected with the transfer of State Archives, and their preservation. In India, the Indian Museum Act was enacted in 1814. In order to control the accidental finds (treasures) obtained from the earth under the name Indian Treasure-trove Act in 1878. In Pakistan also the same act is under use. In Tunisia the Decree of 1886 regarding the ownership and conservation of antiquities and objects was enacted. The Treasure-trove Ordinance of 1888 of Sri Lanka is also similar to the above. In 1889, in France a law controlling the transfer of cultural property classified by the State was brought into existence. In the year 1897, the objects recovered from excavations were declared as Government property under the law. In Egypt a law was enacted concerning the protection of antiquities and regulating archaeological excavations. All most all countries have some law or the other for the protection of monuments, archaeological remains, palaeontological sites and antiquities.

Legislative Measures-Global Context

Every country is vigilant in safeguarding its cultural and natural heritage. Depending upon the need, various countries have enacted laws and Acts to protect the heritage. The earliest law regarding the protection of cultural property was one, which controlled the transfer of State Archives in 1809 in France. In India the Indian Museum Act was enacted in 1814. The Indian Treasure-trove Act 1878 was enacted to protect the treasure-trove finds in Indian context. Since this Act was enacted in the undivided India this Act is being followed in Pakistan. The Degree of 7th March 1886 came into existence in Tunisia regarding the ownership and conservation of antiquities and art objects. The Treasure-trove ordinance of 1888 of Sri Lanka was enacted in 1888. The Law of 1889 controlling the transfer of cultural property came into existence in France. By the law of 1897, cultural property recovered by excavations became the property of the State in Greece. The Egyptian Law of 1897 was enacted protecting the cultural objects recovered by excavations. Barring a few countries, export regulations exist almost every where. Singapore and Kong Kong are international markets where all kinds of curios and art, archaeological and ethnological objects are available. There is no restriction except the local customs duty. In almost all countries there are prohibitory orders for the export of cultural objects.

ICOM compiled all the laws regarding the protection of cultural property and was published in the name of Handbook on Natural Legislation-Burnham, 1974.

Convention for Protection of Cultural Property in the Event of Armed Conflict (1953)

Recommendation of International Principles Applicable to Archaeological Excavations (1956)

Recommendation on the Most Effective Means of Rendering Museums to Everyone (1960)

Recommendation on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (1964)

Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (1970)

Convention Concerning Protection of the World Cultural and Natural Heritage (1972)

Recommendation Concerning the International Exchange of Cultural Property (1976)

Recommendation on Participation by the People at Large in Cultural Life and Their Contribution to it (1976)

Recommendation Concerning the Safeguarding and Contemporary Role of Historic Areas (1978)

Recommendation for the Protection of Movable Cultural Property (1979)

Among the UNESCO's many conventions and recommendations are those concerned with prohibiting and preventing the illicit export, import and transfer of ownership of cultural property (1970), the protection of both the world and national cultural and natural heritage (1972), the International Exchange of Cultural Property (1976) and the protection of movable cultural property (1978). It has also been actively promoting the nature of cultural property to its country or origin, particularly material, which may have been removed during colonial occupation or through commercial exploitation.

INDIAN LAWS REGARDING ANTIQUITIES

India possesses thousands of monuments, which are worth preserving. The British rulers thought about their preservation. Many made a very good study on them and recorded. But up to the 18th Century there was no legislation to preserve them. There was a beginning in the legislation regarding the preservation of structural vestiges of the past. The earliest attempt in this area was the passing of the Bengal Regulations XIX of 1810. In 1817 the Madras Regulations came into existence. These empowered the Government to intervene wherever private individuals faced a public building with the risks of misuse.

In 1863, when Lord Canning was the Governor General of India the Act of 1863 was passed. According to this Act the Government has empowered to prevent injury to and preserve buildings remarkable for their antiquity or for their historical or architectural value.

In 1878, the Indian Treasure-trove Act, 1878 was enacted when Lord Lytton was the Governor General of India. In 1866, the first Indian Museum Act, 1814 transferring the management of the museum from the Asiatic Society to the newly formed Board of Trustees. 1910 amendments

were made to the Act. Subsequently in 1960 amendments were made to the Indian Museum Act and the new Board of Trustees was headed by the Governor of West Bengal as its Ex-Officio Chairman, was directed to fight against treasure-hunting besides regulating the lawful disposal of treasures found in accidental digging.

In 1904, during the reign of Lord Curzon as Governor General of India, the Ancient Monuments Preservation Act, 1904 was enacted by the Government of Bengal. It was to provide for the preservation of ancient monuments, for the exercise of control over traffic in antiquities and over excavation in certain places and for the protection and acquisition in certain cases of ancient monuments and of objects of archaeological, historical or artistic interest.

In 1921, in the Devolution Rules of 1921, archaeology was classified as a Central subject. According to this, all the protected monuments under the Ancient Monuments Preservation Act, 1904 were brought under the control of the centre leaving the unprotected monuments under the protection of the Government of Provinces.

In 1932, when Earl Willington was the Viceroy of India amendments to the specific provisions of the Act 1904 came into effect. These amendments allowed the issue of licence to outside, including foreign agencies for the excavation of protected areas and to regulate operations like mining, quarrying, blasting, and excavation at or near protected monuments.

In 1935, the Government of India Act, 1935 made archaeology as a federal subject. As per this Act all powers related to the ancient and historical monuments, including archaeological sites and remains previously vested to the Provincial Governments were taken over by the Government of India.

In 1947, when Mortimer Wheeler was the Director General of Archaeology, the Antiquities (Export Control) Act, 1947 was passed by the Indian Government. Under this Act, no antiquity can be exported without a license issued by the Director General. In terms of this Act, antiquity includes any object which is over 100 years old and the Antiquities (Export Control) Act, 1947 includes provision for giving certificates as to whether an object is an antiquity or not an antiquity.

In 1950, when the constitution of India was promulgated, the responsibilities between the centre and States as far as archaeology was concerned were given a good shape.

According to this, under Union list, ancient and historical monuments and records, and archaeological sites and remains declared by or under law by Parliament to be of national importance.

Under the State list, libraries and other similar institutions controlled or financed by the States; ancient and historical monuments and records other than those declared by or under law made by Parliament to be of national importance. They are called state monuments.

Under the concurrent list, archaeological sites and remains other than those declared by or under law made by parliament to be of national importance.

In 1951, in order to fulfil the provisions of the constitution, the Ancient and Historical Monuments and Archaeological Sites and Remains (Declaration of National Importance) Act, 1951 was enacted in November 28th, 1951. Under this all archaeological sites and remains declared under the Ancient Monuments Preservation Act, 1904 were re-declared as monuments and archaeological sites of national importance.

In 1958, with a view to bringing the Ancient Monuments Preservation Act, 1904 into lines with the constitutional provisions and also to conform to the new developments in the changed situation Ancient Monuments and Archaeological Sites and Remains Act, 1958 was enacted on August 28th, 1958.

In 1961, through an Act of the Parliament, the Salar Jung Museum along with its library was declared as a Museum of National Importance.

The Arms Act, 1959 (54 of 1959) was enacted by the Parliament in 1960 and it came into force on the first of Oct. 1962 by a special notification issued by the Ministry of Home Affairs on the 13th July, 1962. It extends to the whole of India.

This Arms Act regulates the acquisition, possession, manufacture, sale, import, export and transport of all kinds of arms in India. According to the Section 2 of this Act, the arms means articles of any description designed or adapted as weapons for offence or defence. It also includes, fire arms, sharp edged and other deadly weapons, and parts of, and machinery for manufacturing arms. But does not include articles designed solely for domestic or agricultural uses such as a lathi or ordinary walking stick and weapons incapable of being used otherwise than as toys or of being converted into serviceable weapons.

Section 3 of the Act clearly specifies that no person (or institution) can acquire, have in his possession or carry any arms or ammunition unless he holds in this behalf a licence issued in accordance with the provisions of the Act. The Arms Rules, 1962 were made there under.

As per outlines of this Act, the Ministry of Home Affairs issued instructions to the district authorities to see that all the institutions including museums, other than those owned by the Government, obtain licences for the weapons under their possession.

In Section 15 (1), the Ministry of Home Affairs added that the fire arms, being a danger to the social security, should either be drilled in the barrel, or their muzzles or lock plates should be wrapped and sealed thus making them unserviceable. Accordingly, most of the museums, specially those owned by the private trusts, corporate bodies or societies, were asked to

1. Prepare and submit a classified list of all kinds of weapons under their custody,
2. Obtain licence for all of them and
3. Get the barrels of the fire arms either drilled or wrapped and sealed.

Section 45 (e) has mentioned that the Act should not apply to the weapons of 'obsolete' pattern or of antiquarian value or in disrepair which is not capable of being used as a fire arm either with or without repair.

In 1965, the Antiquities (Export Control) Amendment Bill, 1965 was enacted. According to the 1947 Act, the Director General of Archaeology in India was the final authority to decide whether or not an article is an antiquity. But according to the 1965 Bill this power vested with the Director General was transferred to a Board called the Antiquities Appellate Board and that its order 'shall be final'.

In 1972, the Antiquities and Art Treasures Act, 1972 was passed on September 9th, 1972 in order to cope up with the high occurrences of theft and illicit traffic in antiquities which the Antiquities (Export Control) Act, 1947 could not control. Following that, the Antiquities and Art Treasures Rules, 1973 Rule dealt with a term "Art treasures" which are not antiquities within the meaning of the same legislation. The Antiquities and Art Treasures Act along with its Rules was enforced from 5th April 1976. An ordinance amending certain provisions of the Act was promulgated on 4th June 1976 and was made into an Act later in the same year without effecting any change in the provisions of the Ordinance or incorporating any new clause.

THE WILDLIFE (PROTECTION) ACT, 1972

The Wild Life Protection Act, 1972 under its constitution under Chapter III covers constitution of Wild Life Advisory Board, procedure to be followed by the board, duties of Wild Life Advisory board etc. It restricts the hunting of wild animals; it requires the maintenance of records of wild animals killed or captured; it restricts killing of certain wild animals; it grants permission for special purposes; it withholds the licence issued on good and sufficient reasons; it restricts hunting of young and female or wild animals; it permits the declaration of closed time during which, certain animals should not be hunted through notification.

Under Chapter IV of this Act various efforts were undertaken by the Government to organise Wild Life Sanctuaries, Zoos, Nature Reserves, the Tiger Project etc., to control the killing of wild animals and exporting skins and trophies out of our country.

Under Chapter V of this Act, wild animals, animal articles and trophies become government property. It provides the necessary legal basis to prevent trade or commerce in wild animals, animal articles and trophies. Chapter V of this Act prescribes stringent action at various levels to put an end to this illegal activity. Recently, following the regulation that called for the declaration of antiquities and works of art possessed by individuals and private institutions, the Government in respect of natural history materials has also introduced a similar measure.

Under Chapter V and article 49, no person shall purchase, receive or acquire any captive wild animal, other than vermin, or any animal article, trophy uncured trophy or meat derived therefrom otherwise than from a dealer or from a person authorised to sell or otherwise transfer the same under this Act: Provided that nothing in this section shall apply to any transaction entered into by a public museum or zoo with any other public museum or zoo.

INTELLECTUAL PROPERTY RIGHTS

Intellectual property (IP) is a genetic title for patents, copy right, trademark, design right, trade secrets and so on so forth. Intellectual Property allows people to own their creativity and innovation in the same way that they can own physical property. The owner of IP can control and be rewarded for its use and this encourages further innovation and creativity to the benefit of us all. There were problems of Intellectual Property prior to the setting up of the World Intellectual Property Organisation (WIPO) one of the United Nations organs in the 1960s. Through this the Intellectual Property was well defined.

The four main types of IP are

1. Patents for inventions
2. Trade mark for brand identity
3. Designs for product appearance
4. Copy right for material.

Patents, registered designs and trade marks need to be applied for and one will only get protection if what one has is something that can be protected by these types of IP.

If the patent or registered design will not be given protection, if the patent or design is already disclosed to the public.

IP rights generally give the owner exclusive rights to use the material protected in certain ways. IP right can be licensed or sold like property.

IP rights are essentially private rights.

Before seeking remedies legally, it is better to try and negotiate a solution to illegal use with the infringer.

After a specified period, it is necessary that a material protected by design right is subject to a license of right.

In the IPRs, the law confers

1. A transparency claim against outsiders to stop them taking advantage of the ideas or symbols.
2. The rights are treated as capable of assignment, licensing and similar dealings and that carries them close to our most complete forms of property. The United States and others in the developed world set themselves rigidly against a concession which would have reduced property rights to more liability rights. Now the IP has become a potential salvation for developed countries.

Bibliography

1. Agrawal, O. P., Museums Association of India-Origin and Development, journal of Indian Museums, Vol. XXXIX-L, 1993-94.
2. Harinarayana, N., The Treasure-trove Act and the Government Museum, Madras, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
3. Nair, S. M., Illicit Traffic in Natural History Materials, Security in Museums, Museum Association of India, 1979.
4. Pandey, K. N., Arms Act and its Implication in Museums, Journal of Indian Museums, Vol. XXXVIII, 1982.
5. Rashmi Sharma, Antiquarian Laws in India, Journal of Indian Museums, Vol. LI, 1994-95.
6. Sarkar, H., Museums and Protection of Monuments and Antiquities in India, Sundeep Prakashan, Delhi, 1981.
7. The Ancient Monuments and Archaeological Sites and Remains Act, 1958, Government of India, Ministry of Law, Justice and Company Affairs, 1977.
8. The Ancient Monuments and Archaeological Sites and Remains Act, 1958.
9. The Antiquities and Art Treasures Act, 1972, Government of India, 1975.
10. The Antiquities and Art Treasures Act, 1972.
11. The Gazette of India, Extra Ordinary, Part II-Section 1, No. 25, New Delhi, Friday, August 29, 1958.
12. The Gazette of India, Extraordinary, Part II-Section 3- Subsection (ii), No. 150, New Delhi, October 15, 1959.
13. The Getty Grant Programme, 1993-95.
14. Wild Life (Protection) Act, 1972.
15. William Cornish, Intellectual Property, Oxford University Press, 2004.
16. www.intellectualpropertydigitallibrary
17. www.intellectual-property.govt.uk

CHAPTER XIX

PACKING AND TRANSPORTATION

Packing of Museum Objects

The primary aim of packing museum objects to protect them physically and environmentally at all stages through, to the place of exhibition in relation to the type of transportation. The packing system should not involve complicated procedures in packing or unpacking. The materials of packaging, packing system and guidelines in packing are essential to take care of the museum objects for posterity.

Packaging Materials

Natural materials such as wood are used in packing to avoid cost as well as environmental changes as wood is buffering the environmental changes. Packing containers are made out of wood, plywood, fibreboard, block board, steel etc. Traditionally cushioning materials such as cloth, straw, gunny bags were used. All of them absorb moisture and transfer it to the objects resulting in decay. In recent years, a variety of foamed plastic materials in the form of balls, peanuts, spaghetti, derived from polyethylene foam, polystyrene foam and polyurethane foam are used in surround packing or float packing. Rubber, polythene air bubbles also are used. For wrapping the museum objects acid free tissue paper, alkaline paper, corrugated cardboard, polyethylene wrapper, polyethylene cellular film air in sealed bubbles, polyethylene cellular film, open cells in film etc., are used. For binding, pressure tapes are used.

Packing Systems

Depending upon the type of museum objects (two-dimensional or three-dimensional), Condition, size, types of transit, weight, distance duration etc., the packing system has to be chosen. There are many systems and techniques of packing either expensive or moderate. Depending upon the museum's budget the packing also can be chosen. When the packing is done the contractors should give the specifications and conservation personnel should supervise the whole operation.

Single Packing

Single packing is very simple and is meant for short distance travel and personalised transport of objects like paintings, prints, drawings, photographs, etc., are wrapped with tissue paper or Kraft paper, and surrounded with additional soft paper padding materials and kept in a slightly larger container made out of wood, plywood or hard board, which is provided with a handle to carry.

Multiple Packing

The packing system in which more similar flat works arranged in layers separated by rigid panels with the free space at the perimeter and edges, which are stuffed with cushion shreds

is called multiple packing. On the contrary instead of rigid panels interleaving the objects may be replaced by corner pads and the slack face all around are filled with cushioning materials.

Horizontal Tray Packing

Accommodating flat museum objects in individual adjustable tray designed with shock absorbers at the corners, which are inturn grooved to the inner walls of the packing case is the horizontal tray system of packing.

Vertical Tray Packing

Panels fixed with flat objects are slid vertically which can slide out and in along the grooves made at two opposite inner walls of the packing cases is vertical tray packing. The vertical panels may have holes or slots for fixing the objects to it.

Tract System of Packing

In the place of vertical sliding panels, a system of tracks can be installed inside the packing cases in order to pack the framed works by sliding along the tracks. In this system also we can accommodate framed paintings, works on paper, photographs etc. Proper shock absorbing materials between the tracks and inner walls of the packing case will avoid the transfer of shocks to the packed museum objects.

Horizontal Slide-out Tray Packing

In this type of packing the slide-out panels are like trays to which the objects are attached. The objects should be held by cushioned fixture having winged nuts.

Float Packing

The surround packing of three-dimensional objects in a packing case with stuffing materials is called float packing. In this packing heavy objects like bronze sculptures, marble sculptures etc., should be wrapped with tissue paper and then stuffing materials like polythene, polyurethane balls etc., are filled in the empty space of the packing case. The packing materials should be clean, dry and free from any deleterious chemicals. The inner wall of the packing case may be lined with polystyrene slabs. It is better to cushion the bottom of the case where bronze is kept with a shock-absorbing layer of 1 cm thick rubber sheet.

Compartment Packing

Compartment packing is similar to the float packing but the number of small objects is packed in different compartments within the same packing case. The case should be sturdy, designed for carrying the weight.

Template Packing

It is packing for complex shaped three-dimensional objects by fitting the object in padded form of templates, which conform to selected contours of the object. The object is wrapped with soft tissue paper and the contact edges of the template with the materials are also provided with

soft materials to avoid abrasion and the object is fixed in position. Small sculptures or heavy objects can be packed in a compartmentalised box employing similar template holding devices to each items as required.

Rigid Foam Template Packing

In this type of packing the object is packed within a packing case in a rigid foam plastic like expanded polystyrene, polyurethane or polythene, which is trimmed, shaped or scooped out or cut to fit around the contours of the object. In this case also the object is wrapped with tissue paper and polyethylene film.

Double Case Packing

In this packing a packed case is placed inside another case and the interspace between two cases is filled with cushioning materials to avoid shocks and vibrations.

Transportation of Museum Objects

There are many opportunities for damage to occur while the museum objects are transported internally within the museum premises or externally for longer distances including shipping or flight. Damages may result to museum objects from any of the following:

- i. Carelessness and improper handling.
- ii. Inadequate holding devices and transporting equipment.
- iii. Improper packing.
- iv. Over crowded storage.
- v. A narrow passage way etc.

No longer can museum objects be hand-carried from one location to another. But they must be transported on trolleys or carts properly padded. Preparation of the museum objects ready for the transportation and handling the objects are the two important conservation aspects in the transportation.

Painting

For safety in handling, paintings should be lifted or carried by both the lower and upper edges of the frame, with the painting side facing the person, as what can be seen is better protected. For larger paintings more persons may be required. When temporarily resting a framed painting on the floor, it should sit on soft pads to protect the lower frame and its corners. Large sized paintings should be transported on a special padded trolley.

Bibliography

1. Dwivedi, V. P., Packing of Art Objects: Some Practical Suggestions, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
2. Nathan Stolo, Conservation and Exhibitions, Butterworths, 1987.
3. Sarah Staniforth, Environmental Conservation, Manual of Curatorship, Ed. John M. A. Thompson, Butterworths, 1984.
4. Susan Bradley, Ed. A Guide to the Storage, Exhibition and Handling of Antiquities, Ethnographia and Pictorial Art, Department of Conservation, British Museum, London, 1993.

CHAPTER XX

MUSEUM LIBRARY

For carrying out publications and research in museums a well equipped research and reference library is an essential prerequisite. The library is the foundation on which the super structure of museum research and education is based. Library is the fountainhead for research. It also acts as a catalyst in arousing interest in the collection and exhibitions of the museum among the literate visitors, the intelligentsia as well as the students who are now visiting museums more often than ever before. One of the major requirements of museum staff and visiting researchers is the provision of a good internal library. Often this is the most neglected aspect of research management, and it undermines the ability to use the collection fully, frustrating comparison and synthesis frequently. Most museums spend pitifully small amounts on their libraries, and many are adequate to answer only minor inquiries. Some rely on the Curator's personal study, while others are fortunate to use the library of the local or district library. Most of the Indian Museums have their own libraries. The Government Museum, Chennai also has a Central Library besides the sectional libraries in the respective sections. The State Central library is also with in the museum complex and this adds strength to the library need of the museum staff. The museum once became a member of the Indian Institute of Technology; Chennai and the museum staff could use the library very well for the research. As the Chennai Museum is affiliated to the Madras University, the scholars can avail the University library facilities.

Scope of the Museum Library

An ideal museum library is meant for the curatorial staff who are expected to do research on the collection they possess, conduct exhibition, do publications etc. It also caters to the need of the scholars. The visitors who are interested in the study of objects do use the museum library to widen the knowledge of the objects on display.

Selection and Acquisition

A museum must have a selection of books related to the subjects dealt within the museum. Multipurpose museums like the Government Museum, Chennai must have a wide range of books pertaining to its collections. Some of the museums have been recognised by the universities. In such cases the library should be updated with books and journals pertaining to the subjects of research. Regular acquisition of books should be made for the library. Separate funds should be allotted for the purchase of books for the library. Whenever project proposals are made to any funding agency it should be kept in mind that funds might be asked for books and journals. A museum library must have the latest release of the books in the field. A large number of sources for selecting books are available. For books Indian National Bibliography, reference Catalogue of Indian Books in Print, British National Bibliography, etc., may be referred. For journals, Indian Periodical Directory, Indian periodicals in Print, Directory of Indian Scientific Periodicals etc., may be referred.

Reference Works

Reference works are not in the reach of most of the museums. But, a museum, which has entered into research activity, must have reference works in the library of the museum. Yearbooks, dictionaries, handbooks, encyclopedias etc., are very essential for a library.

Classification and Cataloguing

The entire library books should be classified and catalogued. Some time back the National Research Laboratory for Conservation of Cultural Property, Lucknow regularly published a list of books available with it. A list of journals, books on specified subjects etc., were made available to all the museums, which had conservation laboratories. Cataloguing is yet another important facet of a library. An ideal museum library is a research library and therefore it should go for a classified catalogue. It must have an author catalogue. The catalogue should be in the form of cards so that they may be very easily handled. Some time back the National Research Laboratory for the Conservation of Cultural Property, Lucknow was releasing the new additions to the library. It was much useful to small laboratories to buy the latest additions to the libraries.

Building for the Library

The museum library must have enough space for the stacking of the books, reading room, study cubicles, lounge for relaxation, etc. It must have only one entrance and exit for the safety of the books. The library must have both artificial and natural lights. It should be properly ventilated. The furniture should be comfortable for the use of the staff and scholars.

Archives

Any office is supposed to have archives for keeping the important records of the office. In India the archives keeping is a time memorial practice. Museums have their own archives. The archives keeps not only their good old records but also important documents about the history of the museum, the purchase of some important objects for the museum etc.

Staff

The museum library must have adequate well-trained staff for extending good service to the curatorial staff and the scholars. The museum library must have at least three members as its staff. Many museum libraries are closed if the library staff is on leave. It should not be the case. In the Victoria and Albert Museum, London the museum library is well staffed and the library has introduced computer documentation and the scholar is able to get all the publication in various aspects of museum in a very short time. The author was able to get references about him when he asked for it. The museum library staff also trains the users how the library should be used.

Bibliography

1. Balakrishn, An Ideal Museum Library, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
2. Gareth Davies, D., Research: Archaeological Collections, Manual of Curatorship, Ed. John M. A. Thompson and others, Butterworths, London, 1985.
2. Muhammad Asghar, Role of Museum Library in National Development, Museology and Museum Problems in Pakistan, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.

CHAPTER XXI

REPRODUCTION OF MUSEUM OBJECTS MUSEUM PHOTOGRAPHY

Museum photography and modeling are two important aspects of reproduction of the artistic and cultural objects in a museum. Both are essential in the routine activities in a museum. A large museum is supposed to have very good studios for the two activities.

Museum Photography

What is museum photography? What is it's specially? In what way the museum photography is superior to other types of photography? These are some of the questions frequently asked. Museum photography is definitely an important aspect of preservation of antiquities. There are various types of photography in museums. They are black and white, colour and slide photography. All are very essential in a museum context. Most of the museums have very good establishment of photographic unit. As a further aid to recording, good photographs should be taken. If colour slides are preferred, these should be reviewed for tonality every ten years, as all colour photographs are unstable, even in the dark. Good black and white prints on non-resin-coated paper should be taken in flat and raking light. It would help the Curators to have a good copy stand and a single lens reflex camera for immediate use.

Types of Museum Photography

Museum photography is different from other still photography. Photography plays a very important role in the museum field. Or in other words the museum publication, publicity, display, museum shop depend mainly on photography. The different types of photography are:

1. Black and white photography
2. Colour photography
3. Slide making
4. Translite
5. Photomicrography
6. Videography
7. Motion Picture Photography
8. UV and IR
9. Holography
10. X-radiography
11. Copying

When an object enters a museum it is essential that they should be documented immediately. For this, photography is very essential. Photographs are made in various angle and the objects are well documented. Photographs are to be taken in the galleries, diorama cases, and in the fields. Sometimes photographs are to be copied to keep them along with the

objects. Many museums go for the preparation of transmits and are well lit in the galleries. In carrying out research the microphotography is required. This is essential in the case of research in natural sciences and in metallurgy. While setting up new galleries photographic enlargements are required to display. In case of authenticating antiquities the precision photography is done which will be much useful in the event of loss of any objects in a museum. They are highly required for the police to make a thorough search for the lost objects. In the event of insuring an object the photograph of the object is required. In the event of sending objects for any exhibition the photographs are very much required. In the event of chemical conservation treatment photography is highly required to fix the condition of the object. It is essential that similar condition should be maintained both in the case of before treatment and after treatment. In such cases colour photography is very well required. In a gallery, an album of photographs of the objects displayed in the gallery is very much required for the safety of the displayed objects. In the publication of books, catalogues, folders, picture post cards etc., the use of photography is highly essential. Nowadays the objects are even videographed and recorded in the computers. The data is available for the scholars through the Internets too. In all the cases the lighting for photography is very important. The photographs should bring out the originality of the object. For the authentication of the objects some times IR and UV photography are also carried out. They reveal the failure in the objects. Nowadays laser photography is also done, which is nothing but the hologram. X-radiography is also used as a type of photography, which is also used as a measure of authentication. Whenever an object enters a museum it is the duty of the Curator to arrange to take photographs and the prints should be ready for the press. Similarly the programmes also should be photographed and sent to the press immediately for publication. Now digital cameras are available. It is easy to get the prints immediately.

Reprography is necessary in the case of documents to make copies for preserving the originals. Reprography deals with the technique of making the copies of original documents. Reprography is a combination of two Latin words and one Greek word. 'Re' means again (Latin); 'Pro' means in place of (Latin); and 'graphy' means writing (Greek).

MODELING

Modeling is also another important facet of the object reproduction, which is essential in the museum field. Modeling is required in the reconstruction of some of the damaged objects in a museum to convey its correct message to the visitors. Now a days the museum marketing is getting much importance in which modeling takes an important role.

Types of Modeling

There are various types of modeling practiced in museums. There are many museums, where there exists a modeling unit. There are modeling units in the National Museum, New Delhi, government Museum, Chennai, State Museum, Lucknow etc. The various modeling techniques adopted in the museums are the following:

1. Plaster casting
2. Fibre glass casting
3. Clay modeling
4. Wax modeling
5. Rubber molding
6. Plastic modeling
7. Metal casting

1. Plaster Casting

Among all the techniques the plaster cast modeling is the cheapest method which most of the museums adopt. For this mould is prepared first of all having the original object as the model. Plaster of Paris is made as a semisolid with water and poured into the mould immediately. Within a few minutes the Plaster of Paris sets and the mould is taken out and the inner plaster model is then finished. Most of the museums do this and the plaster cast models are sold as souvenirs.

2. Fibre-glass Casting

Fibreglass is a polymer, which is used in the manufacture of models in museums. First of all clay mould is prepared into two halves having the original object as the model. Then the fibre-glass is used as the material for the making of the model. Fibreglass models are durable at the same time cost is also high compared to the plaster cast models.

3. Wax Modeling

Wax modeling is the traditional one in our country. In the traditional bronze casting the model was made out of wax. In the European countries there are Wax Museums. The Madame Tusauds in London is one of the examples for this. The V&A Museum in London also has many wax models in its collection. The complete model is made out of wax and high temperature affects such objects.

4. Rubber Molding

The museums through out the globe are using rubber as one of the materials for the reproduction of museum objects for sale as souvenirs. Since rubber is flexible and easy to handle rubber models are preferred in the reproduction. Moulds are prepared as in the ease of other modeling methods. Rubber is used as the material for the model.

5. Clay Modeling

Clay is the chief material in use in the modeling work. Clay models are made and are baked. Even though it is not in use in the museums, they are made in large numbers in villages and are available for those who need them.

6. Plastic Modeling

Plastic is a very important material in vogue to day in museums too. The moulds are prepared as usual and the filling material is plastic. This is also cheap when compared to the models of other.

7. Metal Casting

Metal casting is one of the important modeling techniques in Indian museums. Miniature models of the bronze icons, coins, medals, vessels etc., are reproduced in the museums. In this case the clay or plastecine model is made. The mould is prepared in two halves. The molten metallic alloy is poured into the mould and the inner model is taken out and finished. Government Museum, Chennai is making miniature models of bronze icons and original sized metal casts are made and they are available on state in the museum sales counter.

Responsibility of Curator

The Curator also must be aware of the presence of reproductions, not made to deceive, but sold legitimately as souvenirs. It is advisable to produce miniatures of the original objects. The modeler should be brought to the museum for modeling or the object should be taken to the modeling workshop and the model should be prepared only in the presence of the Curator or any responsible person. Size to size modeling should by all means be avoided.

Bibliography

1. Jane McAusland, Conservation and Storage: Prints, Drawings and Water colours, Manual of Curatorship, John, M. A. Thompson and others, Butterworths, London, 1984.
2. Jeyaraj, V., Handbook on Conservation in Museums, Published by the Commissioner of Museums, Government Museum, Madras, June, 1995.
3. Saha, P. K., Museum Photography with Special Reference to Natural History, Museums and Museology New Horizons, Ed. Dwivedi, V. P., and Pant, G. N., Agam Kala Prakashan.
4. Saha, P. K., Museum Photography-Composition, Creativity and Communication, Journal of Indian museums, Vol. XXXIX, 1983. Delhi, 1980.

CHAPTER XXII

MUSEUMS IN THE PROMOTION OF TOURISM

Lord Curzon when he was in India said, "Tourism is a University in which the scholar never takes his degree. It is a temple where the suppliant adores but never catches sight of the object of his devotion. It is a journey the goal of which is always in sight, but never attained. There are always learners, always worshippers, always pilgrims".

Professor Brian Morris, at the launch of the Museums and Galleries Commission's Annual Report for 1986-87 in London said, "There is a danger that museums and galleries will be seen simply as part of the entertainment industry, providing tourists with somewhere to go when it rains".

We have to analyse the nature of museum and tourism. Tourism is not the only source of visitors to museums. Tourism can often justify a degree of additional development or a special seasonal exhibition, but the majority of use will be by people living within a very limited radius.

Attendance of Visitors at Museums and Galleries

The explosion of museums is incredible. Half of the 200 museums in the United Kingdom have been created since 1971, attracting over 68 million visitors a year. Overseas visitors represent 24% of the total, indicating the relevance and importance of museums to the business of tourism.

In terms of absolute numbers, attendance at museums and galleries in the United Kingdom is impressive. According to one of the nation-wide survey in the UK, there are accurate admission figures for 4,840 tourist attractions in the UK of which 1,547 (32%) are classified as museums or art galleries. They accounted for 74 million (21%) of the 349 million visits in 1990. Monuments and museums in India attract many international and domestic visitors in India. In India during the period 1990-1995, there is an increase of 3.2% in the inflow of foreign visitors. It is expected to have an increase of 4.4% during 1995-2000. About 4-5 million people visit the Chennai Museum every year.

At the same time there has been a great explosion of tourism, together with increased leisure and recreation opportunities. Tourism has a total turnover in the United Kingdom of about 13 billion dollars per annum.

Activities in a Museum

The museum profession is too introspective, and members should be encouraged to travel and broaden their knowledge of visitor requirements. The chief aim of interpretation is not instruction but provocation. It is important above all to provoke and not to bore. I submit that the concept of entertainment is an important one for museums.

1. Exhibitions

Museum collects materials of this day by various means and gives a panoramic view of the art, culture, industry, flora and fauna, mineral wealth etc., of the region for which they stand while preserving them for posterity

Museums are institutions where some kinds of programmes are conducted regularly. Their programmes are of educational value both to the students, public and the tourists. The tourist flow varies from season to season and place to place depending upon the accessibility. The permanent galleries in a museum portray the art, culture and technology of the earlier times of the region. The museums are providing a bird's eye view of the area to the visitors. A visitor, who doesn't have enough time to see the important places in a country, visits the museums and learn about the people and their environment in that locality of the time of yore. Based on the regional festivals museums organise temporary exhibitions which portray the customs and culture based on the festivals. Some museums even arrange exhibitions about the festivals and the materials of importance based on the culture. The bronze and Amaravati lime stone collections of the Chennai Museum have got international reputation and they have attracted greatly many tourists from all over the globe. The tourists always like it if there are periodical changes in the galleries. In the Tate Gallery, London the exhibits are changed once in a month. This has attracted many tourists every month. This makes the tourist both from home and abroad to have repeated museum visit.

Many international exhibitions have been arranged by leading museums and they have attracted the tourists in the country. Now, steps are being taken to conduct many regional exhibitions in India. Action is also taken to bring the museum collection in the Internet. This will make much more tourists to come and visit the museums.

2. Cultural Programmes

A cultural programme in a museum is a regular feature in the European museums. In India too now a days the cultural activities are increased day by day. An expert in the field demonstrates many performing arts in the museums. The Government Museum, Chennai was conducting many programmes under the title, Panorama of Culture with the help of expert in the field. This programme attracted many foreign tourists in the past. Festivals attract many tourists to India as the festivals are conducted in the villages in the traditional way. Museums sometimes conduct programmes related to the festivals. Demonstration of traditional crafts is conducted in the museums, which attract many tourists. Dakshinachitra, in Tamilnadu, Crafts Museums, New Delhi; Museum of Mankind, Bhopal are some examples.

3. Publications

Publication is one of the important tools to increase the number of visitors to a museum. The proper publications make many foreign visitors to see the musewns in other countries. The posters, handbills, newsletters, magazines, picture calenders, scholarly publications really advertise about the musewns to those who are interested to see other countries. Hoardings

banners etc., are inviting many tourists to the museums. In the foreign museums almost all the tourists visit the museum. During the summer, majority of the visitors moves out on holidays. The museums are packed with full of visitors. In India too this has come true. Information about museums is printed in the Tourist Guidebooks. Much more information should be given in those guidebooks so that these will be able to be attracted to the museums. All the museums in the State should be included in the tourist maps printed by the various State governments. The Department of Museums has published a book entitled, *Directory of Museums in Tamil Nadu* authored by me. Mrs. Usha Agrawal published a *Directory of Museums in India* in 2000. This will be a boon to the tourists both from home and abroad. Action is being taken to prepare many handouts about the museums in Tamil Nadu. Action is under process to have facilities on the Internet to have all relevant information about the museums in Tamil Nadu. To day's engagement columns normally bring many tourists to the museums.

4. Interaction between Museums and Tour Operators

At present there are only limited interactions between the tour operators, tourism departments and the museum department. But, this is not to the mark. There should be a close contact all the time. The museums must have a training programme to the Guides in the field on the recent trends in the museums, the new additions, workshops, seminars, lectures in the issue of making the museum to the fullest utility of the tourists. It is better that the Departments of Tourism may inform the various activities of the departments and the museum department can interact accordingly to the extent possible. Museums can prepare materials for the distribution to the tourists, which may be sponsored by the tourism departments. There are instances that the Tamil Nadu Tourism Department has sponsored some of the museum programmes. Recently Tourist operators have come forward to establish endowments for creating awareness on tourism in the museum. This is a good symptom of strong bond between museum and tourism based organisations in Tamil Nadu for the promotion of tourism in South India. New additions, special exhibitions, activities of the museums should be informed regularly to the tourist agents so that they can include museum in the itinerary. There are instances where museums were left out from the itinerary of the tourists. A survey of the source of information about special exhibitions conducted in the Victoria and Albert Museum, London has revealed the Following information; 26% of the visitors got information through posters; 24% only at the museum; 22% through newspapers and magazines; 11% through friends or relatives, 11% at school or college; 4% through leaflets; 1%-radio or television and 1% don't know about the special exhibition at all. Those visitors who had come to the museum intending to see a special exhibition were asked how they had learned about them. Generally speaking, posters were mentioned most, especially in summer. This no doubt reflects the fact that a large proportion of the museum's modest advertising budget is spent on posters, particularly on sites in London underground stations. Only a limited amount can be spent on paid advertising in newspapers and magazines and the exhibitions concerned had received sparse editorial coverage in the press and media. This is lacking in our museums here. No money is being spent on advertisements. One or two posters are used for any programmes in the museums

in Tamil Nadu. I remember, when I was the Curator of the Erode Museum, once 100 posters were printed and displayed on the walls through out the town. They brought many people to the museum. Once it was planned by then Director of Museums, Thiru N. Harinarayana, to keep some posters in the Star Hotels in Chennai. It was followed for some time and was left out. The publicity is very important for any programme in the museum to attract more foreign visitors to the museums. If I do remember correct, the producers of one of the Tamil movies called Chandralekha spent four times the cost of production of the movie film on publicity and they got a profit of three times. The same is the case with the museums. If the publicity is well planned, it attracts much more visitors to the museums, which launched good publicity.

5. Audio and Video Cassettes

The department of museums have got plans to prepare some audio and video cassettes on some special subjects in the museum and made available to the tourist operators as well as the tourists at nominal charges. The tourist operators can screen them to the tourists while they are taken to the sites. The tourists may also purchase them and take home which will add interest to those who have not visited the museums in Tamil Nadu in the future. Tourism departments have launched many CDs in this respect.

Conferences

International conferences are conducted in museums and other organisations. These international conferences bring many tourists in the name of participants. Such conferences organise pre and post conference tours, sightseeing tours etc.

Conclusion

Museums can be utilised to promote tourism by creating a very good rapport between the museums, tourism departments, tour operators, hotels and the press. Museums can create some committees to have tourist-oriented programmes in the museums. Visitor surveys may be conducted in the museums to find out the interest of the tourists and the required facilities may be available to the tourists.

Bibliography

1. A Survey of Visitors to the British Museum (1982-1983) by Peter H. Mann, Occasional Paper No 64, British Museum, London, 1986.
2. Asokan, J. R., Comparative Study on Museum Display and Its interaction with Visitors, Report prepared under the auspices of the Nehru Trust for Indian Collections at Victoria and Albert Museum, New Delhi, 1997.
3. Cultural Trends 1991:12, London.
3. Devasahayam, N., Amalgamating Science Centres and Multipurpose Museums -Thro' Exhibits- Some thoughts, Journal of Indian Museums, Vol. 1, 11.
4. Devasahayam, N., Presentation and Educational Activities of the Anthropological Galleries with Particular Reference to the Government Museum, Madras, Feb. 1967.

5. Harinarayana, N., Setting-up District Museum: An Experience as a Model, *Journal of Indian Museums*, Vol. XXXVIII, 1982.
6. Jeyaraj. V., Current Museum Policies and Practices in the UK, Report prepared under the auspices of the Nehru Trust, 1994.
7. Laster Borley, Museums and Tourism, Book on Working with Museums, Ed Timothy Ambrose, Her Majesty's Stationery Office, Edinburgh
8. Manjula Chaudhary, and Bhardwaj, D. S., Contemporary Issues in Tourism, Himalaya Publishing House, Mumbai, 1997. Batra, G. S., (Editor), Tourism in the 21st Century, Anmol Publications Pvt. Limited, New Delhi, 1996.
9. Manual of Curatorship, A Guide to Museum Practice, Butterworths, Museum Association, 1984.
10. Marg, Vol. XL, No. 3, Bombay.
11. Marg, Vol. XL, No.4, Bombay.
12. Marg, Vol. XXXVIII, No.3, Bombay-
13. Marg, Vol. XXXVIII, No.4, Bombay.
14. Nigam. M. L., Fundamentals of Museology, Deva Publications, Hyderabad, 1966.
15. Pran Nath Seth and Sushma Seth Bhat, An Introduction to Travel and Tourism, Sterling Publishers Private Limited, 1993.
16. Programme and Summaries of Papers, Seminar on Archaeology and Tourism, Department of Ancient History and Archaeology, University of Madras, Chennai, 1997.
17. Satyamurti, S. T., My Recent Observations on European and American Museums, Studies in Museology, Vol. IX, 1973-74.
18. Sight Seeing in the UK, 1990. A Survey of the Usage and Capacity of the United Kingdom's Attractions for Visitors, BTA/ETB Research Services, October 1991.
19. Smita J. Baxi and Vinod P. Dwivedi, Modern Museum, Abhinav Publications, New Delhi, 1973.
20. The Organisation of Museums, Practical Advice, UNESCO, 1960.
21. Victoria and Albert Museum, London, Strategic Plan 1992-1997, August 1993.

CHAPTER XXIII

MUSEUM PROBLEMS

Among various museum problems, which confront a museum Curator forgery, reproduction, export and import control etc., are the challenging problems, which need proper attention to get rid off.

FAKING

Forgery

Forgeries have been made in every culture where collecting the products of the past becomes fashionable or is regarded as an investment. The range of classical forgeries is much wider than has been known to us, and embraces such things as woodcarvings, bronze icons, coins, paintings, potteries. Scientific analysis of the composition of the substances of which an object is made is becoming more and more useful, but forgers are constantly seeking to counteract this work, using the very results of the scientists to aid them. Thus the present day forgeries can be among the most difficult to detect, much more so than counterfeit objects of the past.

Sculptures

Stone

Miniatures of marble sculptures have been duplicated and it is difficult to differentiate between the original and duplicate. In India sculptures are not duplicated as they are plenty in number and they are large in size.

Bronze Icons

Bronze icons of South India are superb in quality and workmanship. Due to age they form corrosion products on the surface, which is a proof of antiquity. Most forgeries tend to be of small-scale objects, as the casting of life-size sculpture is a formidable task. Some of the forgers are able to coat the bronzes with the corrosion products on the objects, which could not be identified by even Curators unless they are examined both physically and chemically.

Paintings

Most of the paintings were duplicated and it was not possible to identify which are the original and the duplicate. Even masterpieces have been altered by artists and are in the museums.

Coins

Coins are small objects and most of the coins have been copied and are under circulation. Even though the forged coins are cast after assaying the contents, the duplicates will be fresh and devoid of corrosion products. The analysis of the corrosion products will reveal the faked one.

Wood-carvings

Woodcarvings in Tamil Nadu are duplicated. It is learnt that old wood is used to carve out sculptures and the sculptures are kept in an environment in which smoke is present. The smoke penetrates the pores in the wood and the woodcarving gets black colour.

Study of Wooden Objects with X-Radiography

Radiology is one of the fundamental non-destructive tools of investigation and examination of works of art such as metal objects, paintings, paper materials, wooden objects, ceramics etc. It has been used for ascertaining internal initial subsequent construction scheme, as used by the artists, in the past or subsequent work done on the objects for restoration purposes or to detect forgeries of the original works of some master pieces. One of the painted wood carvings namely, a 19th Century South Indian Four-armed Goddess, was subjected to X-radiography, which revealed the use of iron nails and strips used to build up the wood carving. This is the uniqueness of the wood carving, which is the authenticating mark of the object.

Transverse Section Study of Ivory Objects

Some of the ivory objects supplied by an art dealer in New Delhi for the National Museum were received an approval basis and there were some controversies on the genuineness of some of the ivory objects. They were subjected to various studies such as Scanning Electron Microscope (SEM) studies, chemical analysis etc. The composition was similar but the examination of the transverse sections of one of the ivory objects with the help of stereomicroscope in comparison with the original piece revealed that the object under question was fake. The original one was having striations i.e. circles, which were quite natural and the new one was artificially forged, as it was irregular having no pattern, which would match with the genuine ivory sample.

Bones

The Piltdown Man

An illuminating example of a long-standing controversy settled by the use of scientific authentication is to be found in the case of Piltdown man. A collection of human jawbones along with fragments of brain case bones were found together with bones of various early mammals at a gravel dig at Piltdown in Sussex, England in 1912. At the British Museum, London the Human bones were examined and it was concluded that they belonged to a 500,000 year old fossil of a man, which was named *Evanthropus dawsonior* Piltdown man. Some authorities could not accept that both the brain case and the jawbone belonged to a single individual. The jawbone appeared to be more ape-like and braincase, more human. The controversy over the Piltdown man occupied the *Scientific World* for over 45 years. Chemical and instrumental analyses revealed that the bones were of recent origin in geological terms. It is possible that



the person who contrived the Piltdown hoax obtained the orangutan jawbone from a dealer in ethnographic materials. It is learnt that these bones were stained with chromium and iron salts to look similar to the finds at Piltdown. Thus a large body of scientific evidence established beyond any doubt that the Piltdown man was a bogus human ancestor.

Authentication of Bronze Objects

Many bronze icons were stolen and some of them have been retrieved. If the bronze icons had been finger printed it would have been easy for our government to retrieve them from abroad. There fore it is essential to finger print them. The finger printing technique is not new to the science. Bronze casting from Cambodia and other parts of South East Asia were characterised radiographically. When the famous *Liberty Bell* developed cracks, they were characterised by radiography. Radiography has also been used to authenticate Roman silverware. Digital radiography and computed tomography had been used to study Chinese cast bronze urns at Cincinnati Art Museum in Ohio. X-ray fluorescence has been used to study the composition of alloys used in ancient coins. Neutron activation analysis has been used in fingerprinting Altheim pottery.



Photograph and Radiograph

In India, finger printing of bronze icons has been done by The Government Museum, Chennai in collaboration with the Indira Gandhi Centre for Atomic Research, Kalpakkam under the auspices of the Department of Science and Technology. In a contemporary work Dr. P. Chandrasekaran, former Director of Forensic Science Department in Tamil Nadu, had investigated the use of laser excited micro chemical analysis and macro photography for characterising the bronze idols. During the preliminary studies some idols were radiographed at DMRL, Hyderabad. The Indira Gandhi Centre for Atomic Research, Kalpakkam in collaboration with the Government Museum carried out a research project in the finger printing of bronze icons in South India and about 100 bronze icons were authenticated.

Methodology

The authentication of bronze icons involves three factors. They are,

1. Study of external features.
2. Study of chemical composition, metallography etc.
3. Study of the casting defects.

Since these bronze icons are individually cast either by solid casting (*cire-perdue*) or hollow casting, the characteristics and the internal and external features are unique to each icon. The techniques that are adopted to authenticate the bronze icons are:

1. Precision photography to record the minute details of external features.
2. X-ray fluorescence spectroscopy to study the chemical composition.
3. Insitu-metallography to study the internal structure.
4. Radiography to detect the internal defects.
5. Holography-fringe spacing-to study the internal defects.
6. Study of physical properties such as thermo electromotive force, electrical conductivity, hardness etc.
7. Chemical analysis.

Precision Photography

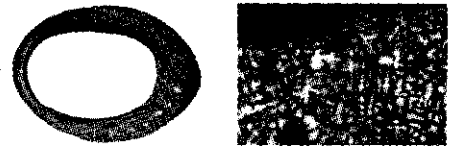
In the museum preservation, normally, three types of photography viz., black & white, colour and slide are very much useful to record the minute details of external features including the colour. Each photograph includes a scale for understanding the size. Good cameras with uniform illumination from either side with slight intensity difference from one side to the other are necessary to obtain the effect of depth.

X-ray Fluorescence Analysis

X-ray fluorescence method is utilised to study the chemical composition at a point non-destructively. Many such points are chosen and the compositions are recorded. The chemical composition of the objects also gives another authenticity to the objects of rarity.

In-situ Metallography

Metallography is a technique in which a beam of light is when allowed to impinge obliquely on a polished/etched surface of the section of a metallic object, a number of elevations and depressions composed of interesting crystal faces and granular appearance owing to its roughness are obtained. The microstructures thus visible reveal the type of casting and the defects found internally which is specific of the point of the object. Without cutting any sample from the image the selected portion is polished and the portion is etched and the structure is transferred to a polymer foil with the help of acetone and the structure is then photographed.



Anklet and its Micrograph

Radiography

Radiographic sensitivity is a general term referring to the size of a defect that can be observed in a given radiograph. Once a defect is detected in a particular location, its presence should be confirmed by a repeat radiography at least along two different orientations. Using this technique voids, cavities, characterisation of the bronze icons are authenticated.

Holography

Holography is a process of three-dimensional record of an art object. The hologram of an idol is taken with He-Ne laser beam. The hologram can be used as a convenient medium for displaying rare objects on exhibitions while the originals are kept under safe custody. Secondly,

the hologram will be of use to authenticate the objects. Fringe spacing is made in the bronze icons of rarity, which characterises the object by forming contour lines, which are specific to each item. No two images will have similar fringe pattern.

Thermal Imaging Techniques

Thermal Non-destructive Evaluation (NDE) is based on the principle that flaws or defects within or on a body exhibit thermal radiation signatures that are different from its surroundings. These thermal signatures can occur naturally due to heat sources present within the body itself or it can be induced/generated artificially through external means. Thus, two approaches or techniques are generally recognized in thermal NDE- (a) passive and (b) active.

Passive technique involves applications where the material already contains its own internal source of heat. Majority of the condition monitoring applications where the component themselves get heated up due to a variety of reasons fall under this category.

Active techniques involve the application of an external thermal perturbation (heating or cooling) to the object as a whole or to a small area of interest within the object. While both heating and cooling can be applied, it is heating which is generally preferred. This can be attributed to the fact that it is easier to heat a body and a wide variety of heating sources are also available. The choice of the heating method is quite critical as this would decide the thermal contrast and hence the detectability of defects. Further, the application of the heat by the source itself should be non-destructive. That is, it should not cause any damage physical or chemical to the object being inspected. A variety of stimulation sources have been used such as hot air guns, incandescent and flash lamps, lasers, plasma arcs, inductive heating, heating strips, etc. Once the heat is input, thermal diffusion takes place and the resulting thermal profiles on the object surface is detected by the I.R. camera.

Once the thermal signatures have been induced, infra-red inspection reduces the problem of detecting these signatures or differences in emitted thermal radiation and recording the same. Two methods of observation are possible based on the location of the camera and the heat source (a) reflection technique in which the thermal source and the detector are located on the same side of the object under investigation.

Thermal imaging is an indispensable tool in the field of condition management in electrical, chemical, petrochemical and steel industries. It finds extensive applications in the aerospace industry for the examination of composites and adhesively bonded laminates, materials characterization and also for the conservation of art objects.

Physical Properties

A physical property of an object is a function not only of the constituents but also the conditions under which the properties are determined. Therefore, only those properties which are less sensitive to the experimental conditions or whose measurement conditions can be controlled so as to provide unambiguous and reproducible results need to be employed. Thermal electromotive force, electrical conductivity and hardness are examples of such properties. The emf values at points, which are recorded, will authenticate the bronze icons.

The electrical conductivity measurements are yet another method of authentication. The electrical conductivity is measured by means of Eddy current principle.

Hardness is a measure of resistance of indentations and a yardstick for the resistance to wear. Hardness measurements provide a quick and easy method of characterisation of materials such as bronze icons. The measurement of hardness of cut samples will reveal *Rockwell*, *Vickers* or *Knoop* hardness values. But '*Equotip*' is a dynamic method of measuring hardness based on the principle of energy measurement.

Dimensions

Dimensions also play a very important role in authenticating the bronze icons. The weight of the icons should be recorded properly. The other dimensions like length, breadth, thickness etc., will reveal enormous clues for authentication. While cleaning, the bottom innersole of the pedestals of bronze icons should be left out as such as the soil samples adherent to the surface will reveal many clues for authenticity.

Chemical Analysis

There are many methods of chemical analysis. The author still practices the *Weisz* Ring Oven method to find out the metals present. Atomic Absorption Spectrometer is used to find out the trace elements level. Samples cut out from the pedestal is used to analyse the constituents by various means to authenticate the bronze icons. The value of chemical composition at various points authenticates the bronze icons.

Reproduction

Museums reproduce museum objects as souvenirs and are sold in the museums. Mostly the reproductions are miniature models. Photographs are made available to the visitors at nominal charges. Colour post cards also are available for sale in the museumshop or sales counter.

The Curator must be aware of the presence of reproductions, not made to deceive, but sold legitimately as souvenirs. It is advisable to produce miniatures of the original objects. The modeler should be brought to the museum for modeling or the object should be taken to the modeling workshop and the model should be prepared only in the presence of the Curator or any responsible person. Size to size modeling should by all means be avoided. Present day trend is that the coin collectors are trying to analyse the ancient rare coins are arranging to reproduce them to sell at high prices. At times paintings are also reproduced for sale but they should not be size to size. In some museums copying of paintings is permitted but not size to size. In some metal casting centres the bronze icons are oxidised to look like an antique. It is normally called as antique finish. There are some that try to bring in the patina by the application of some chemicals. Some try to coat a strong solution of ammonium chloride on the newly fabricated bronzes and get a green colour and are sold to the common tourists at exorbitant price. Similarly woodcarvings are also carved and put under the soil and are smoked to look like old. At times tar is also applied and hardened to look as if they were removed from old temple cars.

Methods of Bronze-casting

Replicas are made even today in various parts of India traditionally. Basically the two popular methods of bronze casting practised in India are:

1. Solid casting (*cire-perdue* meaning lost wax process) and
2. Hollow casting.

Import and Export Control

There is illicit traffic of antiquities from one country to the other and it has caused a lot of confusion in the past. Even though there are import and export control acts existing in all the countries, the illicit traffic of antiquities are terrific. The export control Act tries to avoid the not possible export of antiquities from our country. Those who want to send non-antiquities from our country should apply to the Archaeological Survey of India for getting a certificate of non-antiquity. With out the certificate it is to send them abroad. Some of the cases of illegal export of antiquities have been registered in Indian context. The Sivapuram Nataraja, which was shifted to UK finally, got back to India and now the Nataraja icon is preserved in the Icon Preservation Centre, Thiruvavur. There are various enquiries to the museums about the selling of antiquities. Public should be properly educated in order to preserve our own culture with in India. Those objects, which are sold in the Government-owned commercial outlets are allowed to be air lifted if the individuals have the proper cash receipts.

Staff Problems

Any museum will have a certain degree of problems. The problems normally encountered are unauthorised absence of staff, late coming, problems between sections of staff, non-cooperation etc. Welfare measures of the staff should be taken care off then and there. Rules must be strictly enforced so that absence of staff will be reduced. Due to lack of staff, some times, some galleries used to be kept closed. This gives a bad name to the museums. For this a close coordination among the gallery, technical and ministerial staff should be maintained. The union leaders and representatives may be invited for discussions on general issues. Grievances Meeting may be conducted and the members of the staff may be permitted to putforth their inconveniences. Training programmes may be conducted in which the role of the staff should be discussed. Always, the trouble shooters may be identified and proper counselling may be given. Counselling will solve most of the problems.

Bibliography

1. Agrawal, O.P. (1993) Preservation of art Objects and Library Materials, National Book Trust, India.
2. Bhardwaj, H.C. (200) Metallurgy in Indian Archaeology, Tara book Agency, Kamachha, Varanasi.
3. Bisht, A.S. (1987) Radiology of Some Painted Wooden Objects-A Preliminary Study, Conservation of Cultural Property in India, Vol. XXII, New Delhi.

4. Bisht, A.S. (1989) Science in the Aid of Fakes with special Reference to Ivories-A Case Study, Conservation of Cultural Property in India, Vol. XXII, New Delhi.
5. Dikshit, K. N., theft and Smuggling of Antiquities: Some Preventive Measures, Museums and Museology New Horizons, ED. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
6. Donald M. Bailey, Classical Antiquities-forgeries and Reproductions, Manual of Curatorship, Ed. John M. A. Thompson and others, Butterworths, London, 1984.
7. Harinarayana, N. (1985) Bronze Casting, Chennai.
8. Jeyaraj, V. (2003) Manual for the Conservation Gallery, Government Museum, Chennai.
9. Joshi, M. C., and Ramachandran, K. S., The Problem of Imitations of Antiquities, Museums and Museology New Horizons, Ed. V. P. Dwivedi and G. N. Pant, Agam Kala Prakashan, Delhi, 1980.
10. Sarkar, H., Museums and Protection of Monuments and Antiquities in India, Sundeep Prakashan, Delhi, 1981.
11. Sen, D., and Upadhyaya, B. B., Art and Archaeological Theft in India, The Protection of the Artistic and Archaeological Heritage, United Nations Social Defence Research Institute, Publication No. 13, Rome, 1976.

CHAPTER XXIV

MUSEUM MARKETING

According to the economic theories, the basic principle of marketing is the supply of some product as per demands of the people. But in the museum context it varies a little. Marketing (in the context of information products and services) may be defined as a concept of the sensitively serving and satisfying the information needs of those who are involved in education, research, edutainment (Education and Entertainment), infotainment (Information and entertainment), entertainment , multimedia industry and so on. Information is now considered as a saleable commodity.

The main motives of museum marketing are to bring the museum to the notice of the people so that they can use it more and more and take advantage of its services satisfactorily. It is to build up long term relationship. This is to create and retain a customer/client relationship.

Orientation

In order to have a good museum marketing, we should have proper orientations in product orientation, sales orientation and market orientation.

Product Orientation

Attention should be given to produce more museums, more products such as information, more stuff, cleanliness, more service, more basic amenities, more quality and lively programmes etc. Improvised quality products will make visitors to queue up. People queue up in the Madam Tusuads, London.

Sales Orientation

Sales orientation is another facet where attention should be given. Museums must satisfy themselves that they produce good quality foods for marketing them by evaluation through various means such as visitor survey, media reviews, good revenue, more visitor and repeated visits by a visitor, peer comments, happy comments on museums by politicians, teachers' praises etc.

Marketing Orientation

To have a good marketing one must find out the needs of the visitors. The customers are kings. The museums should motivate corporate bodies, donors to contribute for the upkeep of the museums and bring visitors to the museums using marketing tools and techniques.

Prerequisites for Marketing

- Museums should have clear mission and objectives. Today most of the museums and staff do not have their mission or to say without any objective. Mission statement should be adhered.

- While aspiring for good marketing one should know what marketing can do and what it cannot do.
- Museum must have clear marketing strategies while marketing without any damage to the museum objects or to the visitors.

Museum Marketing Strategy

Without clear-cut marketing strategy, a museum cannot thrive.

- *Visitors:* A museum must have proper number of visitors. Without consumers, clients, customers the museum marketing cannot prosper. Their need, satisfaction etc., should be assessed before marketing. Community should be involved in the museum activities.
- *Image Building:* Museums are identified by their collection. An image about the museum should be created by its collection, specialty, activities, amenities, services, quality goods etc.
- *Delivery Mechanism:* Museums must device the means of delivering the products. Publicity takes major role. Literature, audio means, video means, transportation etc., should be well prepared and informed to the visitors. Proper communication to various agencies will have a good marketing.
- *Directive Marketing:* Museums should have the proper infrastructure to have the quality of products economically. The staff should be involved in the profitable marketing by exposing them to the current trends and they should feel that marketing is theirs at every level.
- *Fees:* Even though museums are non profitable institutions, they have to sustain of their own to have their identity. Various fees, depending upon the facilities available in the museum, can be charged from the visitors.
 - Entrance fee
 - Fee for guide service
 - Fee for special talks
 - Parking fees
 - Cloak room fee
 - Photographic fee
 - Videographic fee
 - Movie camera fee
 - Lavatory fee
 - Telephone fee
 - Fee for screening films
 - Library fee
 - Special exhibition fee

- Fee for xeroxing
- Translation fee
- Consultancy fee
- Hiring of equipment fee
- Fee for school kits and teaching aids
- Fee for conservation or restoration
- Manuscript or records searching fee
- Fee for architectural and design services
- Fee for identification of objects
- Fee for boating
- Fee for mini train
- Fee for instant photos
- Fee for training
- Fee for special programmes
- Fee for taxidermy services

Marketing is a discipline for museum Curators. The principle of good marketing is worth of consideration. In the words of the subject, most museums are product oriented rather than market oriented; they try to interest their public in what they have to offer, rather than producing something designed to satisfy a particular market or group of people. They suffer accordingly. It is not possible to go just a little further in deciding what type of visitors museums would like to entice and then setting targets more towards the end.

The museum exhibit does not sell product or services as trade show exhibitions; it conveys information to people with diverse backgrounds who are seeking to add knowledge, quality and entertainment to their lives. Museums provide experiences that most people cannot create for themselves, but at the same time meet challenges of its diverse audience, complex subject matter to be presented with in limited budget through careful planning and thoughtful displays, hence assuming the role of imposing creative education seeking to entertain, inform and involve sophisticated marketing and public and public relations.

All American museums rely on membership drives – many of which are quite ingenious in character. The Metropolitan Museum doubled its membership in the last five years by using many of the most popular membership drive techniques. Members almost always receive something fairly tangible in return for joining. They are offered a kind of hierarchy of privileges and honours related to the scale of their living – including reduced admission rates, monthly newsletters, invitations to special events and openings, and even small gifts such as scarves, pins, or tote bags. Members are made to feel a real part of the institution they have joined.

Museum shops have become common resources for American shopping for Christmas gifts and mementoes of their visit to a particular city. Shops sell reproductions, books, postcards and even jewellery and toys for children. Museums also earn income through admissions, of course, and through organising special trips or tours for their members.

Licensing programmes are also becoming increasingly popular with museum administrators. These programmes link nationally respected museums with equally regarded manufacturers and retailers who, under strict control, are empowered to manufacture and market reproductions and other products based on museum collection designs. In return for these rights, the licensee pays royalties to the museum for the length of a contract.

Proper campaign of activities through attractive and well written campaign materials and articles in newspapers coinciding with the event increase the marketing aspect in a museum. Another aspect of museum campaign, which is growing in importance and sophistication, is the actual mechanics of raising the campaign funds. These include setting up a museum with a staff, which researches and identifies prospects. In campaigns, volunteers are organised into committees, which meet to review progress and set goals to be reached.

Museums have not revealed their full potential as educational institutions. Despite a longstanding and serious commitment to their function as institutions of informal learning, there is a troublesome gap between reality and potential that must be addressed by policy makers in education and museums.

Community perception is often a key element in attracting a particular audience to an exhibition or programme. Marketing is the commercial word associated with the idea of attracting a group of people to a product, event, or programme. Special attention must be given in nurturing both the impressions and reality of public involvement in museum programmes, events and exhibitions.

Museum Shops

The management of museum shops involves ethical considerations. The articles on sale and the nature of their promotion should always be in good taste and be consistent with the museum's academic standpoint. Real objects should not be offered for sale, and indeed the merchandise should never be of a nature, which could be interpreted as the wherewithal of a genuine antique dealer.

The museum shop is the outlet for the museum's commercial productions such as scholarly catalogues, temporary exhibition catalogues, colour reproductions, plaster casts, metal casts, rubber casts, plastic casts, fibre casts, general trade books related to the collections, stationery and gifts, such as calendars, diaries, pens, CDs, video cassettes, masks, address books and puzzles.

In the European museums the pricing of museum publications often produces a conflict between the desire to make things available in the museum at the lowest possible price and the necessity

to give full trade discounts if any reasonable distribution is to be achieved beyond the museum. Any product for which capital has to be locked up for some time before reasonable returns have been achieved will certainly need a mark up of more than one and a half times cost in general trade publishing the factor will be at least 4 to 5 times to allow for distribution and trade discount, royalties and general overheads, before a modest profit can be found.

Shop losses are a perennial problem. Though it is difficult to believe - and unpleasant to consider – the statistics in the UK and America show that more losses are due to staff pilferage than to customers.

In Indian condition the museum shops sell their own reproductions to the public. The Lucknow State Museum is selling the plaster casts to other museums and visitors. The National Museum, New Delhi has got its own modelling unit, which caters to the needs of the visiting public. The shop has got the publications also. The museum shop in the Government Museum, Chennai has got in it the publications of the museum, picture post cards, photographs, miniature bronze models, metal cast coins, fibre cast models of sculptures of the museum. It is planning to produce masks representing the images, tribals, preserved birds and animals etc., in the museum, which can be taken by the children as souvenirs. There are also proposals to request the Poompohar, the Tamil Nadu Handicrafts Development Corporation or a Non Governmental Organisation to set up a Museum Shop in the museum itself for the benefit of the visitors.

Bibliography

1. Aravindan, V., *Towards Heritage Management of a Colonial Ensemble: The Museum Complex in Egmore, Madras*, Thesis submitted in partial completion of the Course on Master's Degree in Architectural Conservation, School of Planning and Architecture, New Delhi, Feb, 1997.
2. *Careers I Museums*, Published by the Museum Training Institute and the Museums Association with grant support from the Museums and Galleries Commission, London.
3. Charles D. Webb, *Museums in Search of Income, The American Museum Experience (Book)*, Scottish Museums Council, Her Majesty's Stationery Office, Edinburgh.
4. Frank Akinson, *Financial Management*, Ed. John M.A. Thompson, *Manual of Curatorship*, Butterworths, 1985.
5. Grace Morley, *Museum Administration and Staff, Museology and Museum Problems in Pakistan*, Ed. Saifur Rahman Dar, Lahore Museum, Lahore, 1981.
6. Jassal, H.S., *Museum Administration in India, Museums and Museology New Horizons*, Ed. Dwivedi, V.P., and pant, G.N., Agam Kala Prakashan, Delhi, 1980.
7. Max Hebditch, *The management of Premises*, Ed. John M.A. Thompson, *Manual of Curatorship*, Butterworths, 1985.
8. Michael Diamond, P., *Personnel Management*, ED. John M.A. Thompson, *Manual of Curatorship*, Butterworths, 1985.
9. Sadashiv Gorakshakar, *Marketing Heritage*, *Journal of Indian Museums*, Vol. LII, 1995-96.
10. Zaheer, M., *Museum Management*, Lucknow, 1963.
11. *Proceedings of the National Museum Conference of the Museum Association of India*, *Museum Marketing*, Mysore, 1998.

Bibliography

1. A Brief Guide to the National Museum, New Delhi, 1989.
2. Agrawal, O. P., (Ed.), Small Museum, New Delhi, 1975.
3. Agrawala, V. S., Museum Studies, Prithivi Prakashan, Varanasi, 1973.
4. Asokan, J. R., Comparative Study on Museum Display and Its interaction with Visitors, Report prepared under the auspices of the Nehru Trust for Indian Collections at Victoria and Albert Museum, New Delhi, 1997.
5. Banerjee, N. R., Museum and Cultural Heritage in India, Agam Kala Prakashan, Delhi, 1990.
6. Centenary Souvenir, Madras Government Museum, 1951.
7. Chakraborti, R. M., Perspective in Animation Media, Studies in Museology, Vol. IX, 1973-74.
8. Cultural Forum, Special Number on Museology, Ministry of Education, Vol. VIII, Nos. 1& 2, New Delhi, Jan. 1966.
9. David C. Benliner, Community Hopes to Keep museum, New York Times, March, 25, 1973.
10. Devasahayam, N., Amalgamating Science Centres and Multipurpose Museums-Thro' Exhibits-Some thoughts, Journal of Indian Museums, Vol. LII, 1995.
11. Devasahayam, N., Presentation and Educational Activities of the Anthropological Galleries with Particular Reference to the Government Museum, Madras, Feb. 1967.
12. Dikshit, K. N., Museums, Monuments and Security, Journal Of Indian Museums, Vol. XXVIII, 1971-72.
13. Dorothy H. Dudley, Irma, Bezold Wilkinson and others, Museum Registration Methods, A Joint Publication of the American Association of Museums and the Smithsonian Institution, 1968.
14. Dwivedi, V. P., Pant, G. N., Museums and Museology: New Horizons, Agam Kala Prakashan, New Delhi, 1980.
15. Ellis Burcaw, G., Introduction to Museum Work, The American Association of Museums for State and Local History, Nash Ville, 1975.
16. Fred W. Mc Darrah, Museums in New York, 1967.
17. GET/GNC/SEM-J/01 10, May 1996, NIIT, 1996.
18. Grace Morley, Museums Today, Department of Museology, Baroda, 1968.
19. Harinarayana, N., Setting up District Museum: An Experience as a Model, Journal of Indian Museums, Vol. XXXVIII, 1982.

20. ICI Newsletter, INTACH, Indian Council of Conservation Institutes, No. 17, January 1998.
21. Indian Museum, General Guide Book, 1989.
22. Indian Museums Review, 1957-58.
23. Indian Museums Review, 1961-64.
24. Information Brochure, National Museum, Institute of History of Art, Conservation and Museology, 1996-97.
25. Jeyaraj, V. (2003) Manual for the Conservation Gallery, Government Museum, Chennai.
26. Jeyaraj, V., Current Museum Policies and Practices in the UK. Report Prepared under the Auspices of the Nehru Trust for Indian Collections at the
27. Jitendranath Basu, Indian Museum Movement, Benson's, Calcutta, 1965.
28. John R. Saunders, Evaluation of Extension Work with children, Curator, 2, No. 1, 1959.
29. Journal of Indian Museums, Vol. 1973.
30. Journal of Indian Museums, Vol. XXXVIII, 1982.
31. Journal of Museums, Vol. XXXVII, 1981. Working of Central Government Museums, Review Committee Report, Ministry of Education and Social Welfare, Government of India, New Delhi, 1972.
32. Kannan, R. (2003) Manual to the Bronze Gallery, Government Museum, Chennai.
33. Kenneth Hudson and Ann Nicholls, The Directory of Museums, The Macmillan Press Ltd., 1975.
34. Kotraiah, B., Problems of Labelling in Museums, Studies in Museology, Vol. IV, 1968.
35. Lester Borley, Museums and Tourism, Working with Museums, (Ed) Timothy Ambrose, Scottish Museums Council, Her Majesty's Stationery Office, Edinburgh.
36. Local Authorities and Museums, Report by a Working Party 1991, Museums and Galleries Commission, London: HMSO.
37. Manual of Curatorship, A Guide to Museum Practice, Butterworths, Museum Association, 1984.
38. Markham, S. F., Museums of India, 1936.
39. Michael Brawne, The New Museum Architecture and Display, Frederick A. Prager Publishers, New York. Washington, 1965.

40. Michael M. Ames, *Museums, the Public and Anthropology*, University of British Columbia Press, Vancouver and Concept Publishing company, New Delhi, 1984.
41. *Museums Journal*, Vol. 64, No. 3, Dec. 1964.
42. Nair, S. M., *The Language of Museum Display*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-4.
43. *National Museum: An Introduction*, New Delhi, 1960.
44. *Newsletter, ICBCP*, Lucknow, No. 1, April 1997.
45. Nigam, M. L., *Fundamentals of Museology*, Deva Publications, Hyderabad, 1985.
46. Pant, G. N., *Role of Museums in the Growth of Contemporary Arts*, *Journal of Indian Museums*, Vol. XXXIX-L, 1993-94.
47. Philip S. Rawson, *India Museology*, UNESCO Press, 1965.
48. Plenderleith, H. J., *The Rome Centre. Studies in Museology*, Vol. 1966.
49. Prabha Sahasrabudhe, *A Children's Museum for India*, University of Baroda, 1941,
50. *Proceedings of the UNESCO Regional Seminar on the Development of Museums*, Vol. II, Jan-February, 1966.
51. Sadashiv Gorakshkar, *Marketing Heritage*, *Journal of Indian Museums*, Vol. LII, 1995.
52. *Salar Jung Museum Guidebook*, Hyderabad, 1990.
53. *Salar Jung Museum: A Perspective*, 1997.
54. Sarkar, H., *Museums and Protection of Monuments and Antiquities in India*, Sundeep Prakashan, Delhi, 1981.
55. Satyamurti, S. T., *My Recent Observations on European and*
56. Sharma, R. C., *Hundred Years of the Mathura Museum*, *Journal of Indian Museums*, Vol. XXIX, 1973.
57. Sharma, R. C., *Museums and Their Relevance*, *Journal of Indian Museums*, Golden Jubilee volume, Vol. XXXIX-L, 1993-94.
58. Sharma, R. C., *Policy Framing on Museums*, *Journal of Indian Museums*, Vol. LII, 1995-96.
59. Smita J. Baxi and Vinod P. Dwivedi, *Modern Museum*, Abhinav Publications, New Delhi, 1973.
60. *Standards in the Museum Care of Archaeological Collections*, Museums and Galleries Commission, London, UK, 1992.
61. Stephen White, *Implication of Technology for Museum Education*, *Museum education*, Ed. Eric Larrabee, Smithsonian Institution, 1968.
62. *Studies in Museology*, Vol. 1974-75.

63. *Studies in Museology*, Vol. II, 1966.
64. *Studies in Museology*, Vol. IV, 1968.
65. *Studies in Museology*, Vol. VI-VIII, 1970-72.
66. *The American Museum Experience in Search of Excellence*, Scottish Museums Council, Her Majesty's Stationery Office, Edinburgh.
67. *The Handbook for Museums*, Gary Edson, and David Dean, Routledge, London and New York.
68. *The Museum and the Needs of People*, ICOM CECA Annual conference, Jerusalem, Israel, 15-22, Oct. 1991.
69. *The Museum Manual*, The Madras Government Museum, The National Art Gallery and The Government Museum, Pudukottai, 1966.
70. *The Organisation of Museums, Practical Advice*, UNESCO, 1960.
71. Timothy Ambrose, Ed., *Education in Museums Museums in Education*, Scottish Museums Council. Her Majesty's Stationery Office, Edinburgh.
72. Usha Agrawal, *Brief Directory of Museums in India*, Museum Association of India, New Delhi, 1980.
73. *Victoria and Albert Museum, London, Temporary Travelling Exhibitions*, UNESCO, 1963.
74. Zaheer. M., *Accession, Indexing, Custody, Labelling and Verification of Objects*, Allahabad, 1963.

About the book

This book on Museology-Heritage Management tries to portray the aspects of heritage, management, architecture, museological principles, museographic techniques, museum functioning including collection management, documentation, presentation, security, storage, conservation, publication, public relations, museum library, museum problems, museum marketing, museum studies, visitor services, administration including e-governance international and national organisations connected with museums, laws pertaining to museum management, select museums in India etc. In most of the chapters a checklist is also included for the successful management of museums.

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Dr. V. Jeyaraj, born in 1950, is a post graduate in chemistry and history. He joined the department of museums in 1976 after serving a few years in school and college. He headed two district museums in Erode and Vellore as Curator for about 7 years and as Curator for conservation over twenty years. He has to his credit over 120 research and popular publications in conservation, anthropology, archaeology, numismatics, museology etc. He has written over 20 books such as guidebooks, books on conservation and museology. He is the present President of the Indian Association for the Study of Conservation of Cultural Property, New Delhi, Coordinator, Government Museum Manuscript Conservation Centre (NMM), ICOM Member and Life Member of various professional associations like Museums Association of India, South Indian Numismatic Society and Association of British Scholars. He is a member of Board of Studies in the University of Cochin, Kerala. He guides research scholars for the award of Ph. D. Degree from the University of Madras.