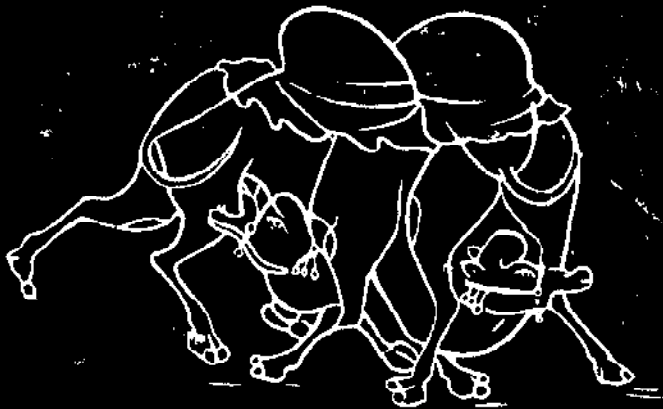


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Editor :
DR. SATYA PRAKASH

SALAR JUNG MUSEUM, HYDERABAD.

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Governor
Andhra Pradesh

Raj Bhavan
Hyderabad-41
8th January, 1971,

M E S S A G E

The strength of any museum rests on its collections, but it is what is done with these collections that, ultimately, determines the standing and contribution of each museum. The Museum, being a visual library, must present before the public the tangible expressions of culture so as to convey, as best as possible, an understanding of the heritage it represents.

The modern man is compelled to be a communicator, to be articulate and to convey clearly and accurately the message of his mind and spirit. Study of, and research into, the contents of this museum, therefore, is essential to realise as to how best our museums function as entertainment-cum-enlightenment centres, treasure houses of beauty and also Universities of common man.

In a great museum (like the Salar Jung Museum), as in a great University, research into the unknown must be the passion, which dominates all and on which the functions of conservation and education depend.

The Salar Jung Museum Journal is a welcome step towards interpretation, on scientific lines, of the museum's contents and the most important technical issues connected with museology.

It is hoped that it would continue to dedicate itself to the increase and diffusion of knowledge; in other words, to deep study and research and to education, since this alone constitutes one of the most useful outlets for information and results, ultimately, in the raising of the standards of public knowledge.

Sd/-
(KHANDUBHAI K. DESAI)
Governor of Andhra Pradesh
and
Chairman
Salar Jung Museum Board.

EDITORIAL

Salar Jung Museum, like the very first Museums of the world, which were founded on individual pride, local pride and national pride and which were collections of objects put in mediaeval churches in order to attract people or to entertain them during the long church services, was founded on pride. But it was the individual pride shown by Salar Jung I and III that was responsible for the formation of collections for this Museum. The Museum, in its initial stages, was founded for curiosity, to contain curiosities, to entertain and to divert people. It was founded on cupidity, the desire to possess at one place the riches of the past of not only this country but also those of the other countries, and while this, on the whole, worked well and is working well even to this day, as and when we look to the daily attendance of visitors to this Museum, it has its result at the present time, when emerging nationalities, sometimes, demand the return of the material collected from them years ago. The Museum being a visual Library, has to satisfy its clientele by presenting before its visitors the tangible expressions of history so as to convey best an understanding of the heritage it presents. Museum, thus, is not our attic but is our treasure chest. It is, in fact, more than the collections within its walls and is alive. Unlike schools, colleges, universities and libraries, it shies away from playing only an academic role by virtue of its contents, method and structure of its presentation. One of its chief purposes is to communicate with a vast and diversified audience, consisting of both literate and illiterate visitors, young and old, rich and poor, sophisticated and unsophisticated, and to enhance, if possible in suitable ways the visitors' thinking, feeling and acting and even his growth.

In its simplest form, the art museum endeavours to communicate ideas and principles of aesthetics by means of actual objects of art. Research is the life-blood of authentic collection, its preservation and interpretation and it guarantees the honesty and truth of any presentation. A Museum's chief consideration for the research scholar has to be to show him as much material as possible. In other words, its best efforts have to be the affording of the maximum facilities for locating it, and ensuring for him easy access to it.

In times gone by, the Museum was a mere repository of the past. It was, in other words, a closed world, devoted to research and the preserve of a

privileged public. In all the countries of the world and, particularly, in the so called developing countries, it is, today, not only an instrument of general education and culture by acting as a research centre, presenting on the basis of communication in the museum on various levels, the average visitor, who wanders off in the street the non-school going child and the school-child under guidance and research scholar, but also, and above all, one of the main collective means of opening a window on the outside world. While arousing awareness of national values, it also leads the public to transcend them and through the inter-dependence of races and cultures to attain friendship between men, the best token of peace in the future. As a Museum with collection of international character, Salar Jung Museum offers ample scope for research for fostering growth of international brotherhood by promoting understanding between one nation and the other. Research for practical men is an effort to do things better and not to be caught asleep at the switch.

It has to be the 'tomorrow' mind, instead of the 'yesterday' mind. We have to try to see how this fits our museum here. Research is a high-hat word that scares a lot of people, but it need not; it is rather simple. Essentially it is nothing but a state of mind, a friendly and welcoming attitude towards change. Collections, though overwhelming in size, must remain the primary concern, the primary element of the Museum's facilities. From the researcher's stand point, collections of the Salar Jung Museum need not be looked at only through glass doors. They have to be seen close up, handled, spread out to close study at a suitable place.

The collection of art in the Salar Jung Museum, which is a museum of art, is to serve as a powerful source for a better life. Research in the choice of integrated material for display with a view to tell a story in step by step progression, research in preserving the material on the most up-to-date scientific lines and research in the interpretation of the material for the benefit of visitors from all conceivable walks of life, with a view to bring atleast an increase in our individual personal happiness and a betterment of the visual environment that surrounds us, is aimed at for being attempted.

The present research journal of the Museum would work for the achievement of the above goal and, in the long run, work towards an environment that is worthy of our higher selves.

*Salar Jung Museum
Hyderabad
20th May 1971*

Satyabinkash

A Problem For India

Isolation, that is separation of Indian artists from the main currents of art of their time in the world at large, and likewise of the Indian public which should be giving them appreciation, encouragement and support, from art developments and art enthusiasm now prevalent elsewhere, is a major impediment for contemporary art's development in India. But isolation similarly is a handicap for arts studies in a still broader way, because it affects scholarly research on the past as well as on recent periods. For example, direct knowledge of traditions, of archaeology in other parts of the world is not available because the museums of the country, with rare exceptions, have collections only of Indian archaeology, art and ethnology, exhibit only that, often indeed only that of their immediate region. So research scholars and scientists are denied the stimulating comparative studies, which in other countries contribute so significantly to the development of knowledge.

This isolation has a number of causes. The abundance of archaeological and art material almost everywhere in the country, which has made museums of stature possible, without benefit of material from outside the country, and therefore made any general effect to increase and broaden collections unnecessary, even if desirable, is one cause.

Generally speaking, the population at large, until fairly recently, accepted as a matter of course as expressing their environment, their own archaeology and arts, including folk and tribal arts. They had, indeed, little curiosity about them and even less about this aspect of life elsewhere. Interest in and respect for the cultural heritage seems, to some degree, an expression of the aspiration, and then the affirmation, of Independence. This attitude of indifference, and for collections, of complacency, accounts to a major degree for India's isolation in regard to arts of the past. But simple distance from other important centres of art activity and of art research in the world, added to this attitude, even more than differences of way of life and other factors, is the major handicap even for archaeology and art study on a broad basis. It is this isolation of distance which affects most the contemporary artists, of course.

Let us consider first how isolation restricts the artist and his market. A comparable situation, on a much smaller scale, of course, can be cited, so recent that it is remembered as a problem likewise, while the results of its solution are still operating.

The West Coast of the United States in the 20's and 30's, before transportation by air was introduced and commonly used for travel, was seriously isolated. Five days of not very comfortable railway travel, at considerable cost, or a still longer journey by sea through the Panama Canal, separated the Far Western cities from the active centres of art production, art exhibition, and art studies of New York. There were museums, not very large nor outstanding in any way as to their art collections. There were almost no commercial art galleries, very rare exhibitions of living artists, either in the galleries there were or in the museums. Yet there were colonies of artists, and excellent artists, in a number of places, in San Francisco and its vicinity, for example. The climate was favourable and living inexpensive and agreeable. They painted, they did sculpture and graphic arts, they taught in art schools. Occasionally, an artist or an advanced student would go to New York, or more often still to Paris for a period, but never for long enough, nor with the right connexions apparently, to be at all informed or influenced by any of the exploratory and revolutionary art movements of the first couple of decades of the century, which were already transforming art in Europe and beginning to affect New York as well. (The 'Armoury' Exhibition, which brought modern art to the knowledge of the general public in the East of the United States, was held in New York in 1913, organized by artists of the East Coast who had been profoundly moved by the developments in Europe and in some few cases had actively participated in them themselves). The excellent artists of California, Oregon and Washington States at that time had hardly responded to the new discoveries of painting light of the Impressionists. At this time art books with fine colour reproductions had not yet appeared; colour slides did not exist. Therefore, these somewhat helpful but still inadequate visual aids to artists and public now used were absent.

Only in the 30's was this isolation of distance of the West Coast broken: artists began to know and react in their own ways to art movements of Europe and of the East of the United States. The beginning of air travel, and therefore more rapid communication, contributed to destroying this isolation, of course. But more effective were the fresco commissions in California for Orozco and Rivera, leaders of the Mexican art renaissance; the nation-wide communication among artists and their support for art work of every kind carried on by Government during the depression; and finally, beginning in 1935, a continuous stream of exhibitions in San Francisco--over 100 annually--exploring every facet of modern art and its evolution and back-

ground. These exhibitions provided for artists of all the West Coast cities an opportunity to become acquainted with what their fellows had done to open new areas for art expression, develop new styles. Side by side with the imported exhibitions, from New York and even from Europe, was operated a programme of one-man and juried annual exhibitions of local and regional artists' work of every kind. But the efforts to provide knowledge of art and to stimulate interest in it by exhibitions, which served artists, but also attracted an increasingly large public and kept it informed, were supplemented by a museum programme of art education for laymen. This programme was not limited to lectures—with black and white slides only then, and actual art works when possible—but opened with a carefully arranged series for groups, limited to 50 each, of enrolled adults, for two-hour-long meetings weekly. These were lectures on contemporary art in the presence of works of art. Artists demonstrated their techniques and explained their ways of seeing and of expressing themselves. At the end of each session those in attendance had an opportunity to try their own hand at the art technique of the session: to paint in oil, paint in water colour; to make a form by modelling in clay, by cutting away soft wood or soap, by bending wire; to carve linoleum for block prints; to scratch coated copper plates for etching; or to incise directly on the metal plate for engraving. This experience, elementary as it was, provided for those in attendance some feeling of the media of artists and of the materials on which they work, adding to the visual knowledge the more intimate knowledge of tactile and physical contact. Only after a year of such initiation into the methods and means of art expression did those who completed the course pass on to history of art in the usual way of surveying the evolution of art forms and styles from cave painting through the Old Masters. There too examining techniques to understand the art of each period was emphasized and the approach was through the artist rather than learning from books. In the third year, the applied and decorative arts and their techniques and their relationship with the evolution of the arts, were taken up. As a result of these courses, very popular and carried on for full enrolment of many sections of 50 each for a number of years, a nucleus of seriously informed and committed laymen developed. Art criticism in the press kept pace with public interest. Knowledge about art, enthusiasm for it, collecting began. (It should be noted that this museum serving art, for artists and for the adult public, opened at twelve noon and stayed open until ten in the evening, allowing after dinner attendance according to the custom of the city).

Supplementing the educational activity and a natural out-growth of the evening open hours and favourable facilities, the museum gradually added other cultural activities, such as concerts of music, poetry readings, dance demonstrations, history of cinema programmes, etc. The museum became

increasingly a centre of what Icom calls "cultural action", an attraction and natural focus for artists and culturally inclined and concerned members of the public.

The next generation was also served by Saturday classes for young people from 3 to 14 years of age, three hundred of them every Saturday morning for two hours, provided with large sheets of paper and poster colours, to do free painting, sometimes on suggested themes, under the leadership of young artists.

What then results from this intensive museum educational and cultural effort for adults and children, that can be definitely detected, measured, and recorded? Well, that is a difficult question. But attendance at all museums of the city increased, those who came from the community made repeat visits, became habitual visitors. In order to see the exhibitions, changed frequently, they came often. There began to be serious collecting, including patronage of local art. Activity among artists also was greatly stimulated and standards of local art exhibitions rose steadily, while many of the artists who had been known only locally or regionally began gaining national recognition. By the mid-40's San Francisco became, for a time, one of the leading centres of the Abstract Expressionist movement, an art style which contributed to the emergence of art of the United States as a recognized leader internationally, a position that it is generally considered still to hold, though styles have changed rapidly.

In any case, the immediate benefits were easy to see and to appreciate: much better informed and highly stimulated artists, freed from their previous isolation, and an interested and concerned public following their work and modern art in general, increasingly buying art, above all contemporary art, and counting on art as a normal part of their environment. Art for better or worse had become fashionable. Recently it has become big business. Art history courses in Universities, and art studies accepted as useful supplementary training, even for undergraduates majoring in other subjects, developed rapidly: Universities of the East had set this pattern; now the Far West not was lagging behind them. Better taste was applied to architecture, to homes, to the development plans of cities. The growth of museums, not only in the city itself, but in the entire Far West region, if not direct results, appear nonetheless concomitant circumstances, also attributable to the escape from isolation.

India is both better and worse off from the point of view of isolation by distance, but also by lack of public knowledge and sympathy in regard to contemporary art, than was the Far west forty years ago. Probably a some

what larger proportion of Indian art students and artists are able to go to the art centres of Europe and the United States than could go from the Pacific Coast States to New York and Paris in the 20's and 30's. Now they profit from well illustrated art books, on every period of art, to give clues to what goes on elsewhere, and now-a-days they have reproductions in astonishingly accurate colour. There are numerous art periodicals. The newspapers in most large Indian cities do a reasonably good job at reviewing exhibitions, bringing to attention art events here and abroad, and significant art books as they are published. The Lalit Kala Akademi, the All India Arts and Crafts Society, various cultural organizations, Indian and attached to foreign missions, bring a certain number of exhibitions of artists from other countries for exhibition in India. Other countries invite exhibition of Indian artists. There is, therefore, a certain amount of exchange of news, of illustrations and of actual works of art, to break the isolation. For the public too, the exhibitions from abroad, the very lively schedule of exhibitions of Indian artists, provide good art fare. Attendance at exhibitions is good, but one cannot yet discern a dedicated public for art, either for current exhibitions or for the great collections of magnificent material from the past, that almost every Indian museum can show. Granted in this latter case that often the exhibits are badly presented and have no coherence, and labelling is frequently poor or totally absent, yet these are great objects, expressive of Indian culture and related to life of Indians today. It is therefore curious that the Indian public, particularly the educated public, does not pay more attention to its museums. In archaeological museums they can find the history of their country portrayed visually and in them appears the personality of the people of India from whom Indians of today originate. Obviously in these times many people are inclined to forget the past, to look only to the future. But even contemporary art does not attract in India attention at all comparable to that for art found today in the countries of the west. Yet a strong case could be made for the great significance that the work of his artists has for the educated, cultured citizen of India. These artists are explorers in the realm of creative expression, seeking a way to represent themselves as modern Indians and, at the same time, to present and interpret their country in its guise of today in the stream of contemporary art. This search for styles, for subjects, for median and manner, at once India and internationally modern—for in the world of today art is inevitably one and artists are an international community—as revealed in exhibitions, should be the passionate concern of an appreciative public. Art too is an arena of ideas, as are politics, social issues, and all the many subjects of debate in India today. In art may well be found many of those clues to the future of value to a responsive audience, for the artist is intuitive and infinitely sensitive and often reveals in his work unknowingly, much about his time and place. Often indeed he appears

unconsciously a sort of prophet as well. In his own sphere, the Indian artist seems, generally speaking, to be accomplishing, and with considerable success, the same passage from the past to the present contemporary world, that the nation itself is carrying on. In his case he is moving from a powerful tradition of past art to a thoroughly individual contemporary expression, holding its own place among contemporary art movement of the world. In doing so he needs the stimulus of an informed and sympathetic public. Isolation of the artist, and of art generally from the public at large, so often occurring in India is possibly even more stultifying for the artist than the isolation of distance from art activities elsewhere. As for the public they are losing a great deal through ignorance and oversight in not knowing and supporting their own artists.

Yet, how artists and public alike could profit by seeing more of the art of the world, seeing more contemporary exhibitions of all kinds! In this case, isolation of distance is a barrier because of the cost, but even more, perhaps, because of procedural barriers of Customs, etc. Thus the "free flow" of cultural material of every kind which Unesco advocates does not usually apply in India to visual original art examples.

For Indian scholars isolation is a serious hindrance. Indian material, and of extraordinary interest, quality and importance, is at hand in abundance, but comparable material from other lands is largely lacking. Even adequate representation of the allied arts of such regions as Indonesia, Cambodia, Thailand, Nepal, Iran, Ceylon, is, with minor exceptions, not to be found. While the great culture of China, the arts of Korea and of Japan are hardly represented at all, and the Egyptian-Greek-Roman-Renaissance heritage of western culture finds little and unsatisfactory reflection in only a few museums of the country. Thus comparative study, so important a stimulus to art scholarship of every kind elsewhere, is denied them. By contrast, in the countries of Europe, of North America, in Australia, in New Zealand, from very recently in Japan, even in parts of Africa in the last few years, and increasingly in the countries of South America, the value of study of art of the world is emphasized. Museum collections have accordingly been developed to include representation of art from all periods and all parts of the world. This is now true in countries as rich in their own indigenous art traditions as Italy, Mexico and Japan, all three with almost as long a heritage as India.

What are the prospects here of breaking this type of isolation: confinement to art of one's own past? Fortunately, there are some possibilities. For example, a small beginning has been made by a few museums. The National Museum, New Delhi, is adding to its important Central Asian Anti-

quities collection, some pieces representing arts from elsewhere in Asia. There is a long standing Unesco recommendation that it has a representative reference collection of art symbolizing the tradition of European art, of which a first step has been taken in the exchange with the Philadelphia Museum which provided it with four late Gothic sculptures. One or two other Indian museums, notably the Indian Museum, Calcutta, with stone sculptures from Cambodia and Java, the Prince of Wales Museum, Bombay, with its large collection of Chinese ceramics, some Japanese netsukes and miscellaneous decorative art objects likewise include Asia. Nepalese and Tibetan sculpture and painting are found in a good many museums. But the arts of the European tradition are most meagerly represented in only a few Indian museums, though in some instances collections were started in the early years of this century.

The Prince of Wales Museum has a fairly large collection of European paintings and few drawings and prints, principally of the 19th and early 20th century. When a British expert in painting examined the collection carefully a few years ago he selected about a hundred and fifty which, drawn out from the rather heterogeneous remainder, could form an exhibition of some quality. It has interest as representing as well a period when India began to have intimate and continuing contact with Europe. The Baroda Museum and Picture Gallery in Gujarat has a rather large collection of oil paintings, some in the Old Master category of the 17th and 18th century, a few probably by well known Italian artists, and some sculptures. The Maharajah of Baroda's family museum near by has likewise some European art. The little known but charming Shri Bhavani Museum at Aundh, Maharashtra, has few sculptures and some paintings, including modern examples. Sri Chitralayam, adjacent to the Art Museum, Trivandrum, has a few examples of western painting. The Victoria Memorial, Calcutta, has also some, mostly on Indian subjects. European furniture, or Indian copies of European samples, mostly late 18th century and 19th century styles, usually British (Chippendale) but sometimes French 19th century, are found in several museums, as for example in the Palace Museum in Gwalior. However, it is the Salar Jung Museum, Hyderabad, which excels all others in the quality and scope of its representation of European arts, in paintings, prints, sculptures, and in a wide range of decorative and applied art objects, including particularly furniture and ceramics.

It should be recognized at once that nowhere are great works of European fine arts, that is painting and sculptures, included in any of the Indian museum collections listed. A few good pieces by well known artists are found in them; in many cases competent copies of famous works are there, especially in the case of old Masters and Greek and Roman sculptures.

How can such collections, unrepresentative in any field, unsystematic, uneven in quality, be used to broaden somewhat in India the knowledge of art on worldwide basis, and thus, in a minor degree at least, contribute towards breaking down India's art isolation ?

As a source and inspiration for artists such collections can hardly serve any purpose. At most they can supplement what they can gain from books, by a suggestion of how artists of the respective periods used their media. For the designer and craftsman, as a source of decorative motifs and examples of techniques, some types of objects may serve as useful illustration and reference, with the caution always that is by no means invariably dependable and that European decorative arts of the 19th and early 20th century were not at their high point. Moreover, copying must always be discouraged. But for the layman, can such collections be treated in a way to broaden his knowledge and to develop his interest in art ? Can they serve in preparing him perhaps to be more understanding of his own country's art, especially of the works of his own contemporary artists ? Can they help make him more responsive to Indian artists' strivings to find their way in art today, by remaining Indian yet assimilating and adjusting to their purpose what suits them of the world art heritage ? Perhaps. A better informed, more interested public would certainly serve to break down the Indian artists' present isolation. It could be counted on surely to respond more enthusiastically to what the artist brings before it of original creation, in the media of his choice, directly expressive of himself and his nation. In other words, collections of this type, used as information and instruction even, such documentation by even unimportant works of fine art, even copies and reproductions, together with a representation of the objects of daily use of the cultures that produced them, can undoubtedly be made to interest and inform the public about European life and thought and their recent historical development. Such reports obviously are pertinent to India, because for better or for worse, India came in to inextricable contact with currents of European thought, European modes of living, and incorporated them to a greater or less extent in its own modern cultures in the very periods represented by these few collections of western material. In the painting of Akbar's time some European influence, in treatment of space, of form, of light had come to Indian notice. Of course, Indian contributions to Europe were much more ancient, India was a famous source of textiles and spices, even in Roman time. However, continuous contact and interchanges of influences in India itself, on a large and regular scale, can be dated from only the 18th and 19th centuries, which these collections represent.

For such a didactic purpose of explaining the Europe of the 19th century to Indians, the Salar Jung Museum is, undoubtedly, the best equipped

of Indian museums. It has some excellent Indian material of some types to provide a frame of reference. Its arms, jades, some textiles, accoutrements of elephants and horses for ceremonial processions, the regalia of a noble family, are Indian items of importance. It has manuscripts of great value, some fine miniatures—all Indian material of the 18th and 19th centuries, with a few exceptions. In addition, there are miscellaneous materials, a sampling of arts and crafts of other parts of the world, the random purchases of a world traveller, sometimes tourist souvenirs and curiosities, occasionally valid representations of Egyptian or Far Eastern cultures.

But the paintings, sculptures, prints, porcelains, furniture and decorative objects of European origin, constitute the bulk of the Museum's collection. In a few cases, groups of European objects have a certain coherence and completeness as well as excellent quality, notably the collection of time-pieces. But in the main, though there is a wide range of art and decorative arts materials, the collections are unsystematic. They are the selections of a gentleman of luxurious tastes and broad interests, as expressed in objects of art acquired during his travels abroad, for the decoration of his home.

The exotic appeal of the Salar Jung Museum's collections will always account for a large attendance. Even the casual curious visitor will surely take away something - for here truly is the pattern of the "wonder house", the "cabinet of curiosities" from which museums have evolved. Possibly that is enough. But such varied collections, representing a different way of life in a different clime, rarities in India, in the hands of an able staff, are likely to take on much greater significance. Indeed, they should be able to play a significant part in breaking down this isolation from other cultures of the world, so long a handicap to India. Most important, the hints that they can provide of the value and interest of the art production of the rest of the world, its variety, its expression of a different evolution of thought and life, its reflection of history, may contribute to changing the attitude of indifference and complacency, so often characteristic of India.

A small example of art linked with history, in this case history of a technology, can be cited: The Salar Jung Museum is especially rich in European ceramics, including a few examples of Meissen (Dresden) figurines. It has some Chinese porcelains of various styles and periods. The drama of the European struggle to find out how to make porcelain, the ancient ware of China so admired by 18th century Europe, can be illustrated by items in the Museum's collection. It was at Meissen, near Dresden, that the first European porcelain was made. The secrets of manufacture were soon pirated and spread everywhere in Europe. The Salar Jung Museum has examples to show of the later results of the Meissen discoveries, as developed in the porcelain factories in

England and France, especially. In ceramics, indeed, it could trace with some elaboration the evolution of European styles and taste from the late 18th century. Paintings, sculpture and furniture could then serve to amplify the illustration of the style and taste of these European periods. Literary developments could be referred to as well, for European literature had obviously a much more overt influence in India, at least on a small elite, during the same time. In short, the arts could, thus, be made at the Salar Jung Museum to serve as useful documents for social history. Its varied collections there offer many other similar opportunities of tracing a style, a technique, or an aspect of taste, of some significance to history and culture.

Does the Pacific Coast museum educational experience in preparing the seeds of understanding art in the community offer any suggestions for the Salar Jung Museum in Hyderabad? Possibly, but only as a hint of what carefully planned intensive effort in using a museum as an educational instrument can accomplish. Its example would have to be regarded with the greatest scepticism, not copied, but appropriate equivalents might be discovered to accomplish comparable aims. After all, Indian conditions are different from those of the Far Western city; Indian needs are distinctive, even to the extent of each Indian city having its own patterns of life, cultural groups and interests. But Hyderabad is a city of convenient size; it has a well-developed intellectual and cultural elite. The Salar Jung Museum, as it finds its place in the community under its new guise of a simple museum in the handsome modern exhibition building, rather than the personal collection and palace that it was, may very well find a pattern of leadership in museum education and cultural action to give an example to the country at large. Everyone interested in museum growth in India will be watching it with great interest and hope.

Jaina Bronzes and Sculpture in the Salar Jung Museum.

The Salar Jung Museum has a small but interesting collection of Jaina images. They are described below :—

1. S. J. M. XLII/85. Size: Figure, H. 85.0 cm. X W. 40.8 cm. Base, H. 25.0 cm. X W. 52.3. cm. (Pl I)

Carved in black stone, the sculpture represents five Tirthankaras in all, along with the main figure, of a big size, standing in centre in the *kayotsarga* posture, two Jinas sitting on top of an inscribed pedestal, on two sides of the feet, and two on sides of the shoulders of the central figure, carved in relief on the plain oblong stela. The central figure is cut in relief in the middle of the slab, and has a halo behind head. One flywhisk on each side of the head of the central Tirthankara represents, symbolically, the two attendant fly-whisk-bearing yakshas which usually accompany a Jina figure. On top of the central figure is the umbrella (chhatra) with its front circular side (rim) ornamented with festoons. The two small Tirthankaras near the legs also have umbrellas overhead. The sculpture dates from c. 12th century A.D. and bears an inscription, in Kannada,† on its pedestal.

- †1. *Svasti Sri Mula San'va Desiyagana Pustaka Gachacha Yingali*
2. *Svarada Baliya Madhava Chandra Bhattaraka Gudda Sri Ma*
3. *Drajandhani Pattana Mara Meharagi-Yakula (Gri) Sena Bhu*
4. *Va Achanna (Yavara) Maga De Vana Nu Sidda Chakradanumpi*
5. *Ka Pancami Nu Mpiga Madisida Sri Pancha Paramesti Gala
Pratima*
6. *(Mangalam)†*

The above inscription states that the image of Panchaparmesthi was sanctified on the occasion of the completion of vows by Devana, the Senabova (Revenue officer) of the capital Eramborage and a disciple of the preceptor Madhava Chandra; who belonged to Mulasangha *desigana Pustaka gachha* and *Ingalea varabhi*.

† Page 73 RC II & page 22.

The sculpture was worshipped by the Digambara sect, since the standing Tirthankara is represented without any garment. In the Shvetambara tradition, a sculpture with five Tirthankara Images is known as a Pancha-Tirthi Pratima but in the Digambara sect, modern Jains also worship such sculptures as Pancha - Parameshthins or The Five Supreme Ones.

The sculpture is reported to have hailed from Mysore State.

2. S. J. M. No. X LII. 72 Size: Figure, H. 88.0 X W. 43.9 cms. Base H. 25.2 X W. 52.5 cms.

This is a more elaborately carved sculpture, hailing from Kupbal, Mysore State, and dating from c. 12th century A.D. The front sides and top show miniature figures of 23 Tirthankaras, carved in relief on the front face of the stela, and seated in the centre of different circles formed of a winding creeper.

On front side of pedestal is an inscription† in Kannada characters, and on top of the inscribed pedestal is a small figure of Dharanendra Yaksha on the right of the Jina, while on the corresponding left side is Padmavati, the Shasanadevi of Parsvanatha.

†1. *Svasti Sri Mula-Singha Desiyag Ananda Madana Dandanayaka Madisida Ba (Sadi) Gira*

2. *Ya-Raja Guru-Mandala - Charya - Rappa Sri Madama Ghanandi Siddhanta Chakravarti Gala Pri (Yaguddagalu) Sri Kupana*

3. *Thi Thrada Eamme Yara (Phrithi) Goudana Priyangana Malouv-Vagi Putidasu Putra Ru Bhupanna Kama—Mja*

4. *Limukya Vagi Ealla Numpi Gacha Vi Sari Rthakara Madisi Kutiru Mangala Maha Sri Sri Sri †*

Andhrapradesh Govt. Archaeological series No. 3 Kannada inscriptions of Andhrapradesha

The inscription states the fact that the Jaina image of chaurisa Tirthankara was caused to be made by Bopanna resident of the holy town Kopana and dedicated on the occasion of consummation of religious vows to a Jaina temple erected by Madana Dandanayaka of Mulasangha.

† Page 73 RC 10 (Inscription) Page 22 (notes)

The sculpture is assignable to circa 12th century A.D. and is a beautiful specimen of art.

3. S. J. M. No. 67 - 17/2. Size : H. 15.0 X W. 5.0 cms. (Pl. 2)

This metal image of standing Parsvanatha, with a nine-hooded cobra holding a canopy over the Jina's head, seems to be earlier in age than the two stone sculptures discussed above. Probably it came from Maharashtra. The stiff broad shoulders and the typical face with thick lips and a long nose with a broad bridge suggest an age around circa eighth century A.D. or somewhat later.

4. S.J.M. No. 63-83 Size : H. 20.7 cm. approx. at the back. (Pl. 3)

This is a Pancha - Tirthika image with an inscription on back. It is dated in Samvat 1453=1396 A.D. and is said to have been installed by certain Samghapatis of Pragvata caste. The (central) image is said to represent Mahavira.

There are two standing Tirthankaras by the sides of Mahavira, and on each end is a standing fly-whisk bearer. By the sides of the halo are two sitting Tirthankaras; the fifth Jina, representing the central figure of Mahavira makes this a Panchatirthi image. On the right and the left end of the lion-throne of the Jina are shown respectively the figures of the attendant yaksha and the yakshi. In the centre of the lowermost end of the *pitha* or platform (on which the lion-throne is placed), is a worn-out figure, probably representing santidevata. Faces and bodies of almost all the figures of this bronze are worn out due to constant washing and rubbing during worship. However it is a typical example of a Jaina bronze with a high platform, common to this age.

5. S. J. M. 63-82. Size : H. 26. cm. X W. 16 cm. (Pl. 4)

This represents what is known as Chaturvimsati - pata, or Chaturvimsati - bimba, i.e. a group of twenty - four Jinas, with one bigger figure of a Jina sitting in the centre, on a cushion placed on a lion throne.

The composition of the whole bronze, with an arch in the upper part is supposed to suggest that the Jinas are worshipped in a shrine.

In the centre of the broad platform, is the dharma-chakra flanked by two deer, below which is the figure of Shanti-devi. Celestial musicians and dancers are shown by the side of the yaksha and yakshi on each end of the simhasana, which is a departure from their usual position on the upper part of a Jaina bronze, by the sides of the triple umbrella etc. On top of this

whole bronze is a mangala-kalasha (auspicious jar) thus supporting the inference that the bronze is supposed to represent a jina shrine.

The figures in this bronze are somewhat better preserved than in fig. 4 described above.

An inscription on the back of this bronze shows that it was installed in Samvat 1530 = 1473 A.D. by certain members of the family of shreshthi Saringa of Shrimata caste residing at Ahammadanagara and consecrated by Shri Jnanasagara of Tapa-paksha (i.e. gaccha). The image is called Shri - Sambhavanatha (the third Tirthankara) sitting in the centre.

6. S. J. M. XLII/243. Size : H. 46 cm. X W 27 cm.

This is a much later Chaturvimshati-patta with the central image representing Parshvanatha, the 23rd Jina, sitting under a canopy of 7 hoods of a cobra. In the group there should have been one more figure with snake-hoods overhead, since Supars vanatha, the seventh Jina, is also represented with cobra-hoods overhead. The arrangement of the Tirthankaras in various arched niches in horizontal panels (one above the other) and having a semicircular arched superstructure would suggest that here a shrine with a southern type of Vimana is suggested. The bronze dates from c. eighteenth century A.D.

'Rauzatul Muhibbin'-A masterpiece of Persian literature & art.

Being one of the three Bukhara Manuscripts in existence this day, the manuscript under reference is a gem of art and literature, on the basis of its calligraphy, illustrations and contents.

The illustrations in the manuscript are covered with a dense texture of shrubs, trees and animals and cloud patterns. The miniatures illustrating scenes and events are numerous. Patches of flowers, blossoming trees, variegated brocade robes, elaborately done-up tents, figured carpets and the intricate ornamentation of the background architecture with the minor accessories characterise the miniatures in this manuscript.

There are a few other works transcribed by Mir Ali, having paintings by Mahmud and others. These are 1) *Macla-ul-Anwar* of Amir Khusraw by Mir Ali dated 947 H=1541 A. D for Sultan Abdul Aziz Bahadur Khan of Bukhara. It has 4 full-page illustrations and is lodged in Khuda Baksh Library, Patna.. 2) *Bostan* of Saadi by Mir Ali dated 949H. =1543 A. D for the same Sultan. It has 16 (8 double) pages, the last signed by Mahmud, Gulbenkian collection, Paris L.A 177.. 3) *Makhzan-ul Asrar* of Nizami by Mir Ali, dated 952 H.=1545 A. D. It has 3 (2 double) pages, signed by Muhammad and Mahmood. *Bibliothèque, Nationale Paris E. Blochet*, pp. LII, LIIC MP Blocket PLS CXI, CXIV and CXV.

This manuscript was written for Abdul Aziz Bahadur Khan, a Timurid king of Bukhara in the year 1548 A. D. It was written in Nastaliq script by Mir Ali. It is supposed to have been illustrated by the artists of Behzad School at twenty places. The names of the artists (Shaikh Yousuf Muzahib, Shaikh Bin Mulla Yousuf Haravi and Surah Mahmood Muzahib) are found in three of the illustrations of the book. These go to make this book a rare piece of art. Besides the above, this manuscript in the Museum is an autographed copy of the Emperor Shah Jehan. It, on the basis of its contents, is one of the three mystical '*magnavis*' which form a collection, known as *Majmu-a-e-Mathnaviyyat* or *Majmua-e-Masnaviyat*, attempted by different

poets, specially written for the Library of Sultan Abdul Aziz Bahadur Khan of Bukhara, between the period ranging from 947 to 957 H. The title of Raudatul (or Rauzatul) Muhabbin (garden of lover), it may be pointed out, belongs to the last mathnavi (or masnavi) and is not the title of this collection (majmua). The contents of the entire collection are (i) Si-Namah (ii) Firaq Namah and (iii) Dah Namah. Raudatul (or Rauzatul) Muhabbin, a poem supposed to be forming part of the last manuscript of the collection, entitled 'Dah Namah' was completed in H. 794, corresponding to 1392 A.D. The manuscript 'Dah Namah' (Ten letters) is a sufic mathnavi (masnavi) and contains ten romantic letters in mystical lore, hence the title, composed by Ibna Imad (dated H. 800).

The poet associated with this poem was born in Khurasan but flourished in Shiraz. He was a contemporary of Khwaja Hafiz. He is quite different from Khwaja Imaduddin, Faqih, Takhallus Imad (of H. 773 or 793), who also composed a similar poem, 'Dah Namah.' The title given to this collection (majmua) appears to be incorrect in as much as it is the secondary title of Dah Namah. These letters, ten in number, are embellished by Ghazals, Hakayats etc. The contents of the book include verses in praise of God, nat, murajat, cause of the composition of the book, on love, beginning of the story, a memorial to morning wind, letters from the lover to the beloved and those from the beloved to the lover and an account of the meeting of the lover and the beloved, comforting of the beloved by the lover and conclusion. The colophon of the manuscript reads to the following purport: written in excellent calligraphic nastaliq by Mir Ali al Katib, dated H. 957, corresponding to 1550 and in H. 956 (1549 A.D) for the Library of Sultan Abul Aziz Bahadur Khan of Bukhara.

The manuscript is tastefully decorated. It has 'zarafshan' spacing for the text. It has ornate 'shama' on folio No. 3, having a central panel with four small cartouches with the text in elegant 'naskh', written in white, encased in black on gold.

The manuscript is illustrated by twenty double-page Persian paintings of the Bukhara School. The artists are at their best in the miniatures. They have shown not only broad and simple effects, but even those of grandeur. They have done wonderful effect with very limited colours, which, though of a delicious clarity, present in them enamel-like depth. The colour compositions are too complex and thoughtful. Persian painting, as is apparent from the paintings of the manuscript, was decidedly a court art, aristocratic and distinguished. All is tense and high quality. In most of the groups, we find the artists betraying animation of the mind and feeling as well as of the figure.

These paintings deal with Si-namah and Firaq-namah also besides the subject matter of Dah namah, which includes in it Rauzatul Muhabbin. A short description of each of these paintings is given below :

In the first painting, a young man is shown seated on the trunk of a tree. He holds a book of odes in his hands. A friend of his is seated in front of him. He holds a goblet in his right hand and a cup in his left hand. The scene of a garden with a stream of water is laid in it and ducks moving on its bosom are presented in it.

The paintings have a richly decorated interior. Around the dome is written a couplet on top,¹ describing the whole scene. The size of the painting is 15.6 x 7.8 cms. on folios IV-2.

In the second painting the natural scene depicted is the same as above. In addition to it, a handsome youth is shown seated in a garden. He has his right leg stretched and both hands raised. He holds a cup in his right hand. In his left hand, he holds an orange fruit. The stretched foot of the youth is, here, held by another youth, who has been shown falling asleep with his head resting thereon. A third youth has been shown standing in amazement. A rubai² on top describes the scene. There is a band all round, back with

1. دو یار زہریک و از بادا کہن نومی - ذرا غم و کذا ہے و گوشہ چہنی
دریں زمانہ رفیق کہ خالی از خلل است - صراحتی منی ناب و
سقیفہ غزل است

The company of two wise friends and old wine, a quiet corner in a garden and a book for study constitute the dream of one, who wants to forget his own self. The two wise friends stand for the goblet of wine & for the poems, composed in praise of the beloved. During that period if there is any friend, who is incapable of betrayal, it is only the flask of wine and the book of verse i.e. those verses in the book, which are written in the praise of the beloved. This book (with the verses in the praise of the beloved) be kept under study and the wine be taken continuously to such an extent that the seeker of wine be lost to his ownself.

2. خواہم کہ دمے دو قدم ان پسر افتم
رخ بر کف پایش فرم و بے خبر افتم
دیگر بہ نظارہ بہ روم بر سر راہش
ترسم کہ شوم بے خود و بر رہنر افتم

I wished that I could fall down at his feet and get lost to myself by putting down my face at his feet. I may, thus, have a look at him by staying on the way of his coming and going. But (in doing so) I fear that I might lose my consciousness, get fainted & fall down on the way.

foliage in gold and colours. It has margins decorated with gold foliage. The size of the painting is the same as that of the first and is, thus, 15.6 x 7.8 cms. on folios VI-2.

Paintings numbering 3 (See plate No. 5) and 4, present in them a mosque scene. In front of the minar, two divines are shown seated on a carpet. Four devotees in the front row and three in the back row have been shown seated opposite to the aforesaid two divines.

There is a prayer in Arabic script over the upper and lower³ central arches, and also over the niche⁴ to the left. The opposite page presents in the courtyard of the mosque a devotee performing *wudu* (wuzu) in a cistern. Another one has been shown seated before a closed door and the mulla is shown seated inside. It is rather sad that the face of the mulla is damaged. The decoration found in this painting, both over the parapet and arches, has in it a Persian couplet⁵, written in Arabic script over it. In line with the above to the left is found written in Persian language in Arabic script in praise of the contemporary ruler. The size of these paintings is bigger than that of 1 and 2 and is 18.6 x 10.8 cms. and the paintings appear on folios IV-8.

Paintings numbering 5 and 6 (See plate No. 8) represent a court (darbar) scene. In it a young man, in all probability, Sultan Abdul Aziz Bahadur Khan, has been

3. The Couplet is in Persian language but in Arabic script.

الهي قابور افلاك و انجم - مهان ا نام بيگمت از جهان كم
 O God! So long as sky and stars endure, its good name may not be allowed to disappear from this world.

اللهم بدا و خلد و لقمه و رفعته

O God the munificent i keep Safe Its wealth, domain and grandeur.

مهاريكباد ايں فو خلد لا منزل

4. This structure or palace may prove auspicious to you.

5. On the parapet

في ايام الدولته الخاقان الاعظم اكرم شاهنشاه المعظم
 ابوالغازي عبيد العزيز خان خلد الله ملكه العالی سلطانم

This reference is to the period of the composition of the work and the execution of the painting (which is of the time of Abdul Aziz Khan, in whose praise has been said a lot here.)

On central arch is written as under.

بريس رواق زبرد نوشتم اند به زر - كه خيبر نكوئي اهل كرم نكسوا هدم سادد
 To the left is written as under.

ما فيمت حضرت خاقان به خيبر

May Khaqan live long.

shown seated under a canopied throne. He is busy in reading a petition and an attendant and a quiver-bearer are standing behind him. Two others have been shown seated in front of the Sultan, with the petitioner seated before the Sultan. Three courtiers are also seated in front of the throne.

Three musicians on one side and two opposite to them are shown seated in the foreground. Four of them are also shown playing different types of musical instruments. Only one is shown producing vocal music. There is a guard posted behind the musicians. A youth is seated in the middle, holding a goblet in each hand, probably waiting for the order of the Sultan to serve it to the persons attending the Court, when and if called upon to do so. The building shown is richly decorated and has beautifully designed carpets laid on the floor of the court. One of these paintings (No. 5) is signed by Shaikh(am) Yousuf Muzahib and has certain Persian epithets written in Arabic script over the tower,⁶ over the main gate and over the door,⁷ drawn from *Sinamah*. To the left in this corner is written in Persian in Nastaliq.⁸

On the opposite page has been presented the courtyard of the palace, which has in it six chargers and their keepers. An officer is shown seated at the entrance and two guards stand behind him. Three men have also been shown standing outside the fence. The painting is richly decorated and has over the tower⁹ and the entrance¹⁰ certain epithets in mixed¹¹ Persian-Arabic languages. There is a couplet from *Sinamah* also written here. This painting No 6 is also signed by Shaikh(am) Bin Mulla Yusuf al Haravi. These paintings Nos. 5 and 6 are in the size 18.6 x 11.4 cms., and appear on folio 12 V-13.

- 6 الهی تابود افلاک و آنجم - میاد افام نهکت از جهان کم
(explained in painting No. 3)
مبارکباد ایس فر خفده منزل ستمه ۹۵۵
May this happy palace (constructed in 955H) prove auspicious.
- 7 اللهم بد او هلد و لنته و رفعتنه
8 دل مسکین حقیال امد بد امت - کم کوئی سالها بودست رامت
The heart of a poor man cannot easily be kept under control unless it is comforted for long.
- 9 کشاده باد ز شادی همیشه ایس درگاه - بحق اشهد ان لا اله الا الله
In memory of God, who has been praised here, this palace may always remain filled with comfort and happiness and may remain open for all.
- 10 بجان تو که دست از تو نه دارم - کم از هم بکسلافی تارو مارم
O God! That life of mine, which may not be placed at your disposal, is placed at the disposal of snakes for being torn asunder.
- 11 فی ایام الدولته الطاقان الاعظم اکرم شاهنشاه المعظم ابو الغازی
عبدالعزیز بهادر خان سلطه العالی و سلطانه

The paintings numbering 7 and 8 relate to the depiction of a picnic scene. In one of the paintings, the prince is shown seated on a carpet. A canopy has been shown hung at one place. Under it is spread the carpet referred to above. The prince, under reference, has a book in his left hand. A youth has been shown offering a cup to him reverently. By the side of the prince are seated two youths but they are all sitting beyond the carpets. A youth is on the point of pouring something from a Goblet into a cup for the man seated in front of him. A musician is seen seated to the left.

In the other painting, which is on the opposite page, we find a youth, offering a cup to an elderly man. Both of them are seen seated on a carpet in this painting. A woman and two men are playing on instruments. Three youths are represented as bringing goblets. Two persons are here standing and one is seated. A youth, at the back, is seen drowsing. The paintings 7 and 8 are in the size of 18.2 x 9.8 cms, and these appear on folio 30 V-31.

The paintings numbering 9 and 10 depict a courtyard scene. In one of these paintings, two youths are shown seated on a richly embroidered carpet, spread in a courtyard, in front of the owner of the palace. An usher is seen standing in the foreground in the left corner. On the top of the building is written in Naskh style of Arabic characters in Persian language*¹² On the opposite page in painting No. 10, two youths are seated on a carpet playing musical instruments. A guard is shown standing behind these two youths. Five men are also shown standing in a corner and appear to be enraptured by the music, produced by the youths from the musical instruments. The gate keeper is seen standing outside the fencing provided. Turbans of the males are damaged. Both the paintings are signed as 'Sorah Abdul Khaqani'.

The paintings bearing numbers 11 (See plate no. 7) and 12 relate to a garden scene and also to an 'At Home' being held there. Three gardeners are shown here working in a garden. From a balcony a princess and her young son watch them from above. A young door-keeper is standing at the door of the garden entrance. Over the tower¹³, over the balcony to the¹⁴ left in the corner¹⁵ and over

12. برسم نقاب خانہ خاقان الاعظم و لا کرم ابو الغازی عبد العزیز
بہادر خان خلد المہ سلطنتہ العالمی و سلطنتہ سنہ ۹۵۵

13. In Arabic script is written the same as in painting No. 9.

14. In Persian script (nastaliq) is written the following

توئی آن کہ کوئی ز سر تا بہ پا - بہ دل خواہ من آفریدت خدا
From head to feet you alone are such, as has been created by God
keeping in view our heart's desire and ambition

بریں رواق زیر جہد نوشتہ اند بہ زر -

15. کہ جز نکوئی اہل کرم نہ خواہد ماند

On the sky is written in gold letters to the effect that nothing else will outlive a human-being but his kind acts.

the door¹⁶ are written certain epithets. Of these, the one over the door is very interesting. This is a couplet, quoted from Firaqnamah.

This painting No. 11 is signed by Sorah Mahmood Muzahib.

The opposite page, bearing painting No. 12, presents a young prince seated over a canopied throne. He is watching his guests enjoying music and drinks. An extra-ordinarily handsome youth is seated close to the throne. He holds a cup in his right hand. A young servant is seen offering him fruits. Seven men and five musicians are seated, while six others are standing. The scene presents Malik and Mahbub meeting each other. Two couplets¹⁷ from Firaq namah are quoted in this painting.

The paintings, numbering 13 and 14, depict in them the opium-smoking scene. The scene opens with a courtyard of the palace, in which eight youths are shown seated. Four of the eight youths are shown drowsing under the evil influence of opium-smoking. One has been shown as having fallen asleep and the other is repenting. Two are shown offering cups. The remaining (presumably) are having opium-mixed liquid. Two bearded-men are watching the show from a quiet place. The palace presented in the painting is a richly decorated one. On the top is an epithet¹⁸ showing the place, where that painting was first preserved. It is signed as 'Sorah Mahmood Muzahib'.

On the opposite page, there is again a garden scene. There, in a garden, a youth has been presented looking at the crescent moon. The size of the paintings numbering 13 and 14, is 19.4 x 10.8 cms. and the paintings appear on the folio 88 V-89.

The paintings bearing nos. 15 and 16 in the book present in them the scene of a Sufi saint reading a book and a fisherman respectively. In the painting No. 15,

16 **بهر خانه کز دوست پایی نشافی - زنگائی سو خد مت از آستانه**
 Whatever the house may be, whether it is kaba or temple, if one is assured of the stay of a friend in it, that house deserves to be paid homage and also visited over and over again.

17 **پری یا ملک یا نبی آدمی - چو انسان عبقی هم مردمی**
نوعی مرے آزان نیست هیچستا وفا - چو صبی که پیوسته بادت بها
 Be it fairy, angel; or human being (without any distinction of any creature), nothing is immortal. This is so morning, which has immortality connected with it.

18 **برسم کتاب خانه خاقان الاعظم الاکوم الاعدل ابوالغازی**
عبدالعزیز بهادر خان خلدالم تعالیٰ -

a bearded-man has been shown seated under a tree with a book in his left hand. The scene depicted is that of wilderness. While a leopard is watching the solitary figure and is unmindful of the deers, rabbits and foxes, a 'mayna' is found seated on a branch of the tree over the Sufi's head.

The signature of the artist is defaced in this painting. The 16th painting presents a fisherman, who is depicted as a bearded man, hauling the net from a river in which two ducks and two fish are seen floating. A young-man has been shown as the one ready to collect the fish in his hands, which hold an open bucket in them. Three partridges are shown over rocks. This painting is signed by Abdullah. The size of painting No. 15 and 16 is 16.8 x 8.8 cms. These paintings appear on folios 109 V-110.

The paintings numbering 17 and 18 present in them, once again, a sufi reading a book. Here the Sufi has not been presented in the same features as the one in the painting No. 15. But the Sufi here is also a bearded person. He has been shown seated near a tree with an open book in his left hand. The scene too here is of wilderness, where a white leopard, deers, foxes, rabbits and birds are seen depicted.

On the opposite page in the painting No. 18, a princess (with her friends) has been presented. The princess, who is young, has been shown seated in her palace, listening to an old woman. Six young maidens are seated and a servant is bringing a goblet resting on a bowl. A woman has been shown watching the scene from the balcony. The painting is richly decorated on the top of the tower. Over the parapet hanging the tower¹⁹ and over the balcony down below are epithets²⁰ in Persian language written in Arabic Script. The size of the paintings is 17.0 x 9.6 cms. and the paintings appear on folios 121 V-122.

The last two paintings, which are 19 (See plate no. 6) and 20, depict in them a palace scene. In the painting No. 19, a young princess together with her friend are shown walking in the courtyard of the palace, preceded by a maid-servant. Two women are seen watching from the balcony, the other two are standing behind the fencing and one is at the half-open door. A young man is seen removing something from a blue and white Chinese jar. This painting is richly decorated on the top of tower and has epithets²¹ in Persian written in

به رسم کتاب خانہ خاقان الاعظم الاکرم و الاعدل ابوالغازی
عبدالعزیز بہادر خان سنہ ۹۵۶ھ
بریں رواق زیورجد نوشتہ اند بزر

کہ حیر نکوئی اہل کرم نظر اہد ماند
ادام اللہ تعالیٰ ظلال عفا بئتم وسفقتہ علی روس الفقرا والماکین
May Pious God keep His Shadow of kindness & mercy over the head
of beggars & the needy.

Arabic script on the parapet and over the door.²² On the opposite page, the princess, presented in painting No. 18, having come forward, followed by her friend, is seen meeting a bearded-man, who is shown as having fallen on her feet. Two women are sitting in the balcony above and are watching the scene, presented down below. One of these women is seated in the centre and the other in a corner in the balcony. Below her, on whose feet has fallen the beardedman on the ground floor, is a woman standing. The doorkeeper is standing at the half-open door, not very far from the main scene. All are seen amazed at the event reported. Decoration at the top is lavish but tasteful. There are couplets²³, written in Persian language in Arabic script over the balcony in the centre, the corner balcony and over the door. The size of the paintings is 17.0 x 10.0 cms. and these paintings appear on the folio 134 V-135.

There are dampness stains on the paintings. Though the paintings had once a few worm-holes, it is now repaired nicely and is nicely bound in the book entitled 'Raudatul (Rauzatul) Muhabbin'. Unfortunately the seals and autographs on the last painting are defaced.

A note by the Librarian of the Salar Jung Museum's Library on folio No. 1 is available here. The same is very informative in the sense that it shows when the manuscript was acquired for the said Library or for the collection by the collector, who, according to the date mentioned in the note, was Salar Jung I. The acquisition of manuscripts like the one under reference speaks well for the highly developed taste of Sir Salar Jung in the field of Persian art and literature.

الهم بدار خلد دو لثم و رفعتهم

(Explained earlier).

23 این کہ خلد صورت گلستان دارد - بجز بیست که بس لولو و مرجان دارد
 کا بیست کہ لا چو ردست و طلا - نقد بیست کہ نقش سخن خاں دارد

This rubal is in praise of this book. According to the poet, though it is, seemingly, in the shape of a garden, it is, in fact, a sample of heaven on earth. It is such a sea as has in it only real pearls and corals. It has got the workmanship of lapis lazuli and gold. It is the best gem of the treasury of the ruler (Sultan Abdul Aziz Khan)

On the left over the door is written in Persian language but in Arabic script.

سپا رکباد این فخر خلد (سفزل)

Some Interesting Book-Covers in the Salar Jung Museum

The Salar Jung Museum is famous for its varied collection of art-exhibits. But the huge and excellent collection of manuscripts, (about eight thousand in number and equally a proud possession of the Museum) is not so widely known even to the scholars. The manuscripts are mostly in Urdu, Persian and the Arabic languages. The earliest manuscript in the collection 'Al-Quran', bears a date referring to the 3rd c. A. H or the 9th c. A. D.¹ Thus, similar other manuscripts, important both from the point of new of antiquity and subject matter (both on the parch-ment and paper) adorn the manuscripts section of the museum and library and throw added light on the various branches of human knowledge. However, a more interesting and alluring aspect of these manuscripts is their rich and variegated book-covers, which are not only to protect the inner contents of manuscripts but also to add beauty and charm to the out-wardly appearance of manuscripts

It was not obligatory on the part of an author or a calligraphist to be a binder too. It, therefore, was the work of a different set of craftsmen to select the material for the covers, to prepare the surface, to carve out designs, to paint and to varnish them over. The covers could be prepared simultaneously or at a later date and serve as the binding over the manuscripts. This is why we find sometimes a manuscript provided with the binding of a different date altogether. The nature of the material for the covers is indicative of the type of the craftsmanship employed in it.

The Salar Jung Museum has got a fairly large and qualitative collection of old book-covers, both loose as well as bound over the manuscripts. The varying materials selected for the covers are wood, papier-mache, leather, ivory, and cloth. As a majority of the manuscripts in the collection are of alien origin, Arabic and Persian, to be more precise, their binding too exhibits foreign techniques, viz, the papier-mache and lacquered work, a technique which was developed in Persia during the Safavid period; the

1. A catalogue of Arabic Manuscripts, Vol. II, pp. 249.

tooled leather design, a technique, which was innovated in Coptic Egypt, during the early centuries after the Christ.

Salar Jung III did not collect Sanskrit manuscripts. The examples of the early Indian book-covers therefore, do not find a place in his collection. However, the museum has, of late, acquired a few but excellent manuscripts and has with them wooden book-covers used for manuscripts done in Devanagiri script. Some of these are good specimens of Indian craftsmanship and go to fill up this lacuna in the collection.

WOODEN BOOK-COVERS:- Palm-leaves were, for centuries, the customary writing material prior to the invention of paper in ancient India.²

The well-known Muslim historian Alberuni has presented a vivid description of the preparing of books from Palm leaves and that of the art of binding them over. He writes, 'In Central India people use the bark of the *tuz* tree, one kind of which is used as a cover for bows. It is called '*bhurja*'. They take a piece one yard long and as broad as the outstretched fingers of the hand, or somewhat less, and prepare it in various ways. They oil and polish it so as to make it hard and smooth, and then they write on it. The proper order of the single leaves is marked by numbers. The whole book is wrapped up in a piece of cloth and fastened between two (wooden) tablets of the same size. Such a book is called '*puthi*'. Their letters, and what-ever else they have to write, they write on the bark of the *tuz* tree''.

It is apparent from Alberuni's description that a bundle of written palm leaves formed a book and its 'binding' was a pair of stout covers above and below, secured by a cord or cords through the centre. The craftsmen had a good deal of choice to select the material for such book covers. Some of the covers were of wood, long and narrow in shape, painted, carved or inlaid with mother of pearl, some of carved Ivory, some of metals, such as

2. (A) The famous poet Kalidasa, while describing the wild elephants roaming around the Himalayan region, says that their (elephant's) bodies looked like the reddish palm-leaves containing the love-letters written with red ochre by the celestial maidens.

न्यस्ताक्षरा घातुरसेन यत्र, भूर्जस्त्वक् कुञ्जरविन्दुशोणाः ।

व्रजन्ति विद्याघर सुन्दरीणामनङ्गलेखक्रिययोपयोगम् ॥ K: S. 1, 6

(B) Rajasekhara, a poet - dramatist of the 9th - 10th century A.D., has also mentioned palm-leaves as the chief writing material of his times. K.M., 10 pp. 124.

3. Dr. E. C. Sachau, 'Alberanis' India' part I, xvi, pp. 171.

Silver, brass or gilded copper, often worked in elaborate patterns or decorated with silver filigree work.

The painted wooden-covers were known as the '*phalakas*'. The variegated paintings over the wooden panels showed the traditional decorative motifs of divine figures, secular stories, scenes from the Ramayana and Mahabharata, as well as the floral and geometrical designs.

The technique of painting on the wooden '*phalakas*' was somewhat different. The painters used '*varatika*' instead of '*lulika*' or the brush, as we know from the works of Rajasekhara.⁵ The evidence of Rajasekhara is in conformity with the similar accounts found in other Sanskrit works like the '*Malati Madhava*' and '*Dasakumaracharit*'. The drama '*Malati Madhava*' speaks of the wooden '*phalakas*' painted with the '*vartikas*'.⁶ Similarly, Dandin, in his '*Dasakumaracharit*', mentions the '*varna-vartikas*', which were kept in the costly caskets studded with precious gems.⁷ According to Dr. Coomaraswamy, the *vartikas* were prepared out of the powdered indigenous colours. The powder of the colour was ground with the boiled rice and the '*vartika*' (candle) of the size of the long finger (*Karnika*) was prepared to paint with.⁸

It is unfortunate that the museum does not have painted wooden *phalakas* of early period in its collection. Of the wooden book-covers available in the museum a *phalaka* of the wooden-cover (No. 64.35.1; M. 41 x 20 c. m., Kangra, 18th c. A D) acquired for the museum in 1964, presents an interesting story in it.

The front of the cover is painted with a secular scene from the Ramayana. It represents Rama, accompanied by his wife, Sita, performing a Yajna, probably the Asvamedha, attended by the Rishis and other royal dignitaries. The extreme right end of the panel shows the horse let loose and being escorted by the armed royal soldiers.

The back-cover is painted in deep red with a full-blown lotus in the centre.

LACQUERED AND PAINTED BOOK-COVERS:— The craft of book-binding received a great impetus with the advent of the Mughals in India. Being largely influenced by the Persian artistry, the Mughal artisan prepared the papier mache covers with a layer of gesso and then of lacquer, on which he painted

4. *Rajasekhara*, V. Bh. 1, 16.


5. *Ibid.*

6. *M M.*, 1, 34.

7. *Dasakumaracharit*, pp; 92.


8. *J.U.P.H S.*, 1950, P. 23, pp. 5.

his design in water colour, giving it a final protective finish with two or more coats of lacquer. In fact, this beautiful technique of book-binding was developed in Persia during the Safavid period. Persian manuscripts, written for the Mughal court in India, were also sometimes provided with painted and lacquered covers. A splendid example is the manuscript of Nizami's 'Khamseh' for the emperor Akbar in 1594-5, now, probably, lodged in the British Museum, London.

The papier-mache cover, No. 160/XXX; M. 52.5 x 38.0 c.m. Persia, late 18th c. A.D. in the Salar Jung Museum is a fine example of this technique (See plate ).

Papier-mache book-cover is lacquered and painted with additional protective finish of lacquer. The painting depicts a hunting scene. Six huntsmen, riding on horse back, are shown, killing lions and deer in the forest. The bands of flower-creeper design run around the panel.

LEATHER COVERS:— Leather-binding was not favoured in ancient India. It remained popular more with the Islamic countries. As the extant remains belonging to the 1st millennium A.D. would prove, the craft of book-binding originated in Coptic Egypt, where leather was used and decorated with tooled designs, so that by the fifth or sixth century A.D. books circulating in Egypt showed all the essential out-ward features of the modern leather-bound volume.⁹ However, some of the book-bindings prepared in South India, more particularly in the Deccan, exhibit the use of leather for book-binding which, probably was an outcome of the close diplomatic and commercial relations of the Muslim rulers of South India with the outside Islamic countries

A leather book-binding relating to Manuscript No. 191; M. 22.7 x 13.3 c.m., South India late 17th or early 18th c. A.D. is competent to exhibit the imported tooled leather design technique of South India (See plate .

The binding is, probably, later than the manuscript 'Munajat-e-Hardrat Ali', which was written in Persia in 1529 A.D. The elaborately-tooled-leather binding exhibits the workmanship and design, which are very much South Indian. The ornamentation on the outer page consists of interlacing bands, composing four-pointed stars. A leafy-border runs around the panel. The entire cover has been given a coating in gold to make the cover more attractive.

9. *Museum Journal*, 1962, p. 62, pp. 162.

10. *Ibid.* pp. 161.

The inner part of the cover has a richer appearance with broad medallions painted with mineral colours all over.

EMBROIDERED CLOTH BOOK-COVER:— The Salar Jung Museum possesses an embroidered cloth book-cover, which, of course, is a rarity. The embroidered book-cover No. 64.8; M. 29 x 15 c.m; Western India; late 18th c. A.D. was acquired in 1964 for the Salar Jung Museum.

The embroidered book-cover represents the Jaina sacred symbols, such as the elephant, bull, lion, fish swastika and '*purna kumbha*' with the figure of a Gaja Lakshmi in the centre. The figures are worked in Zari on blue silk panel.

Bookcovers in the Salarjung Museum, in short, present an interesting study and its collection deserves further augmentation.



An Unusual Temple Lamp in the Salar Jung Museum.

The Salar Jung Museum has a set of two Nepalese temple lamps, which are quite interesting from the point of view of their iconography.* It was a common practice in India, as also in Nepal, to have oil lamps in the inner shrines as also in the various niches of the temples. The incorporation of images in the decorative scheme of the temple lamps was fairly common and this practice was not restricted to the temples of Brahmanical-faith only. It was quite popular in the Buddhist temples as well¹.

The two temple lamps in the Salar Jung Museum have the image of Ganesha in their scheme of decoration. The peculiar thing about these images of Ganesha is that, while in one lamp, a Buddhist deity towers over a kneeling figure of Ganesha, in the other lamp, it is Ganesha, who towers over a kneeling Buddhist deity. These two lamps leave one guessing whether one of the lamps belonged to a Hindu temple while the other one to a Buddhist temple. The workmanship of the two lamps, however, is very similar and the lamps were, possibly, meant for one and the same temple only. Considering the similarity of design and make, one would be inclined to regard the two lamps, nine forming a composite set.

The solution of this ambiguous situation therefore, would involve a consideration of the origin and development of the image of Ganesha in Buddhism in general and in Nepalese Buddhism in particular.

* *Nepal and Tibet felt the impact of Buddhism only when it had already transformed itself into Tantric Buddhism or Vajrayana with a highly developed iconography. Buddhism had its beginning in the sixth century B. C. in India but before its disappearance from the land of its birth, by the close of the twelfth century A. D., it witnessed many changes. The primitive Hinayana, had given way to Mahayana and then to Tantric Buddhism in Vajrayana, Sahajyana, Kalachakrayana and so forth. Ceylon and China had only the Hinayana and early Mahayana faith carried to them.*

It is a matter of common-knowledge that in India Buddhism incorporated many of the popular deities of the Brahmanical religion with the emergence of the Mahayana. This is how we find Indra and Lakshmi, Gandharvas and Kinnaras depicted on many of the Indian Buddhist monuments. The image of Ganesha as Siddhidata or bestower of success, became very popular with the followers of Brahmanical faith in the early mediaeval times and it is not surprising that the Buddhists did not allow Ganesha to remain confined to the folds of the Brahmanical religion only.

When the Buddhists incorporated Ganesha into their pantheon, they provided ample justification also for it. It was claimed that a mystic mantra in praise of Ganesha, called the Gan-pati-hridaya, was disclosed to Ananda by the Buddha himself at Rajgriha.² The mantra was personified in the form of a ganapatihridaya, who was, probably, looked upon as the Shakti of Ganesha³. The mantra, however, contains a sadhana, to be used in the invocation of Ganesha only. This sadhana enjoined that Ganesha should be conceived as being of red hue, standing in a dancing attitude, having twelve arms holding Tantric symbols, possessed of a third eye and two tusks. In a Nepalese leaf-book of the fifteenth century, we find a miniature representation of Ganesha, corresponding to this Sadhana and the text also⁴.

There is another legend about the introduction of the worship of Ganesha in Nepal. It is said that the daughter of the Buddhist King Ashoka founded a temple in Nepal, which was dedicated to Ganesha⁵. Yet, these legends do not prove much, and all that can be reasonably guessed and accepted on the evidence afforded by the existing images is that the worship of Ganesha started gaining popularity in Nepal by the tenth century. The other fact which emerges from it is that the worship of Ganesha as Vinayaka, the remover of obstacles, was popular both with the Hindus and the Buddhists. This, however, should not lead one to surmise that the story of his origin and the explanation of the elephant head was also the same in both the religions. The Buddhists had their own legend, altogether different from the Hindu story.

According to the Buddhists, the god himself manifested his form to a mythical king Vikramajit, who received untold riches and blessings from the god. He was supposed to have become visible in a ray of sunshine and Shiva and Parvati, the Hindu god and goddess, were not supposed to have any relationship with him.⁶

In spite of all this attempt to endow the god with an individuality, free from the influence of any other religion, his association with the Brahmanical religion could never be totally lost sight of. With all the rivalry between the two religions and with the well known association of Ganesha with the Brahmanical religion, his privileged position in the Buddhist pantheon was sure

to suffer atleast in predominantly Buddhist countries outside India, if not in India.

However, some specimens of the later Buddhist art show the beginnings of this trend in India itself. We find the emergence of a Hindu demon form, also called Vinayaka. He was depicted crouching on all fours under the lotus throne of a fighting Buddhist divinity.⁷ Stone images, found in Bengal depict Ganesha, the Hindu demon, figured under the padmasana of the Buddhist goddess Bhrikuti-Tara as well as under the lotus throne of Parnasavari.⁸

The degradation of Ganesha was at its worst in Tibet proper, where icons depicted him lying prostrate under the foot of Mahakala. In this prostrate form also, he was known to the Tibetans only as Vinayaka, the Hindu demon and it was for this reason that he was taken to be the enemy of the faith and was depicted, being crushed by the "Defender of the Law", the Mahakala. The Tibetans could conceive full powers to their own gods only when they were accompanied by their female counterparts as well. No wonder, the complete surrender of Ganesha could not be visualized without his female counterpart also being crushed under the other foot of Mahakala. In the pantheon of the Tschangtcha Hutuktu, there is such a reference. It envisages a group, where Mahakala crushes an image of Ganapati under each foot, one male and the other female.⁹

In Nepal were made two types of images depicting Ganesha being vanquished by some Buddhist deity. In one type he was presented lying on his left side with the body partially raised and leaning on the left arm. This was the case when he was under some peaceful deity. In the other type, a fierce deity towered over him and the attitude of Ganesha was half raised and half kneeling. The Buddhist deity, in the former case, was goddess Aparajita, in one of her peaceful forms such as Pitaparajita and was represented seated with one foot over Ganesha. She was also conceived as standing with her left foot on the left leg of Ganesha and in this form she was called Ganapati-samakranta.¹⁰

In the other type of the image, the powerful Buddhist deity, which towers over Ganesha is Vighnantaka. The Dharmkoshasammuchaya records a story relating to the creation of Vighnantaka.¹¹ The Nepalese Buddhist legend, which explains the creation of this deity is as follows, "A pandit from Odiyana was performing special rites on the bank of the river Bhagmati near Kathmandu, in order to attain a certain stage of perfection or siddhi. Ganesha, wishing to prevent the pious Buddhist from attaining Siddhi, put insurmountable obstacles in his way. The pandit, unable to perform the required rites,

invoked, in great distress, the Buddhist 'Destroyer of Obstacles', who appeared in the form of Vighnantaka and Ganesha was overcome".

The images of Vighnantaka have six or eight arms. In his upper right arm the figure holds a sword while in the upper left arm, he holds a small round shield. His normal hands are placed before his chest holding Tantric symbols, the chopper and a Kapata, or else a bowl of cakes while his left hand is in the abhaya mudra. His crown is a high five-leaved one and he has a third eye and the *Yaksha fangs*. Ganesha is depicted kneeling with his legs, stretched from the knees to the left and to the right, Ganesha wears a crown and holds in his normal right hand a bowl while his left hand is in the Abhaya mudra like that of Vighnantaka. The symbols in the other hand keep on varying from image to image.^{1 2}

One of the two images of Ganesha in the Salar Jung Museum (SJM XLIII/197) corresponds generally to this description. This image has six arms. In the top right and the left hands, he holds a sword and a shield. In the middle right hand he holds a kapala, while the middle left hand is in a mudra, which might well be associated with the performance of some tantric rite. The bottom right and left hands have a rosary and a pasha respectively. Ganesha has also six arms, in his top right hand a rosary, in the middle one an ankush and in the lowest one the vajra. The left hands from top to bottom hold a parashu, pasha and modakas. The total height of the temple lamp is 77 cms while the image proper is 19 cms high. (See Pl. X)

However, it is the other temple lamp of the Salar Jung Museum, which is interesting and rare. The images of Ganesha and Vighnantaka are in reversed position in this unusual lamp i.e., it is Ganesha who towers over Vighnantaka in the image portion of the lamp. (See Pl. XI)

The towering figure of Ganesha in this lamp (SJM XLII/192) has the same Ayudhas in his right and left hand as in the other lamp viz. the rosary the ankusha the vajra, and the parashu, the pasha and modakas. Vighnantaka, too, who lies half-raised and half-kneeling below Ganesha has, in his two right hands, the sword and the rosary but the kapala, which is so very obvious in one of the right hands of the other image, is missing in this case. The left hands hold the shield and the pasha but the middle left hand has nothing in it. The total height of the lamp is 80 cms and that of the image proper 21 cms.

Was this Lamp made to order by some enthusiasts of the Brahmanical faith to provide a fitting answer to the Buddhists? It does not seem likely, for there was no such tradition among the followers of the Brahmanical faith. Besides, the two lamps are almost equal in their total height and the height

of the Image portion. Their designs are also similar and there appears to be little doubt that they form a pair. Since the Buddhists are known to worship Vighnantaka, these lamps must have been made for a Buddhist temple only.

The explanation seems to be in the absence of the Kapala from the hands of Vighnantaka, where he is shown subdued by Ganesha. This image must have been made by the Buddhists alone to emphasize the importance of the Tantric rituals.

REFERENCES

1. Lamps of India, D. G. Kelkar.
2. Nepalese Buddhist Literature, Mitra, P. 89.
3. Indian Buddhist Iconography, Bhattacharyya, p. 157.
4. Ganesa, Alice Getty, Pl. 1 (b).
5. South Indian Images of Gods and Goddesses, Sastri, p. 168.
6. Le Nepal, Sylvain Levi, vol. i, p. 384.
7. Iconography of Buddhist and Brahmanical sculptures in the Dacca Museum, Bhattasali, pl. xlx.
8. Ibid, pl. XXIII (a) and (b).
9. Pantheon, Pander, p. 92 and pl. 230.
10. Dharani Cult, Waddell, p. 193.
11. Rupam Nos. 38-39, Bhattacharyya, p. 88.
12. Ganesa, Alice Getty, p. 44.

Sevres Porcelain Collection of the Salar Jung Museum

One of the unique contributions, France made to the development of art to the world in the 18th and 19th centuries is the production of excellent pieces of Sevres porcelain, which owes its origin to the last part of the 17th century.¹ Till that time Porcelain objects in large numbers used to be imported from China into almost all the European countries. COLBERT² (1619-1683) minister of Louis XIV, the "Grand Monarch" of France, realised this huge wastage of money in purchasing the porcelain at high prices from China. Keeping this fact in mind, he accorded his patronage and favour in producing the porcelain to MORIN in 1702 with exclusive privileges. Afterwards, the work could be carried on by the brothers DUBOIS. They, later, shifted this manufactory to VINCENNES, which was, afterwards, shifted to SEVRES by the king. In 1745 a sculptor named Charles Adam was made instrumental in forming a company. The scheme was approved by the King and exclusive privileges were accorded to him for a period of 30 years and a site was granted for the prosecution of the manufactory in the CHATEAU DE VINCENNES. In the beginning, the styles and decorations, already in vogue in Chinese Porcelain manufacture, were followed. In 1753, the privileges of Adam Charles were purchased by ELOY RICHARD. Louis XV took the third share³ in it and it became a royal establishment. Mme De Pampadour took great interest and encouraged it by guiding and purchasing a large number of pieces for the Royal court and for presentation purposes when it was shifted from Vincennes to Sevres. One of Mme De Pampadour's well known sayings was "Not to buy this China, so long as one has any money, is to prove oneself a bad citizen."⁴ Under her liberal patronage, it reached its perfection, even surpassing the Chinese porcelain. In 1760 the king became the sole proprietor of the Sevres porcelain as is borne out from the following :—

"The decree of Council dated 17th January 1760 ordains that after the 1st of October this manufactory and all its appertinances belonged to His Majesty."

According to article 3rd, this manufacture continued to be worked under the title "Manufacture Royale de Porcelain de France"⁶. In 1753, another decree was passed, authorising the exclusive privileges of making every description of porcelain, plain or painted, gilt or non-gilt, plain or in relief, sculpture or figures. The proclamation renews His Majesty's prohibition against any person or persons of what condition or quality they may be, from making or causing to be made or sculptured, painted or gilt and of the said works whatever form they may be or to sell or barter them or on pain of confiscation of the said porcelain and all matters and utensils employed therein, the destructions of the kilns three thousand livres penalty for each contravention, one third to the former, one third to the general hospital and the other third to the royal manufactory. His majesty wishing, nevertheless, to favour the particular privileges hitherto granted which may be renewed in due course for the fabrication of certain ordinary porcelain and faience, permits fabricants to continue the manufacture of white porcelain and to paint in blue in Chinese patterns only. His Majesty expressly prohibits the employment of any other colours specially of gilding and the making of figures, flowers and sculptures except to ornament their own works with regard to makers of faience, his majesty permits them to continue their work without however the use of coloured grounds in medallions or otherwise or of gilding under the same penalties etc."

Louis XVI also accorded special privileges like his predecessor for the development of the Sevres manufactory in France,⁷ These two kings took special interest in this manufactory and presented a good number of Sevres pieces to the various kings of other countries. Mme De Pompadour, Mme Dubery and Marie Antoinette were great patrons of this industry, who spent immense amounts to decorate their palaces with these pieces. "In 1758 Louis XV presented to the King of Denmark a service of green with figures, flowers and birds, 30,000 livres worth in 1764 to the emperor of China, vases groups after BOUCHER etc, and as well as goblets and various other pieces which were renewed in 1772 and 1779. In a similar manner Louis XVI presented various pieces in 1778 to the emperor of Morocco, dinners, and tea services of a PATE TENDRE amounting to 6948 Livres, in 1786 to Arch Duke Ferdinand of Austria. A table service of Turatoise with daisies and roses to Spanish Ambassador in 1788 to Tippu Saheb of Mysore, a table service, vases, cups and busts costing 33,126 livres. It should be added that for a few years there were no sales to the public of Sevres porcelain from the state manufactory. The productions were made purely for presentations. In the same year he presented a table service consisting of 744 pieces to Catherine II of Russia⁸. Its cost was about 328, 188 livres. Some of these pieces were sent to London and afterwards some of them were returned

to Russia. The description of a plate of this service in the possession of Robert Napier Esq of Shardar may interest many of our readers. It is of Turquoise ground with the letter 'E' in centre formed of minute flowers and Roman numerical II interlaced (E KATHERINE II) surmounted by an imperial crown enclosed by two branches, one of palm, the other laurel. The turquoise border contains medallion of portraits and antique gems on a jasper ground and two narrow borders of white with flowers and gilding, the whole covered with gold ornamentation. The marks of all the artists engaged are on the back of the plate viz, DODIN for the cameos and Busts, Niquet for the floriate initials, BOULANGER the detached Bouquets and Prevosts the gilding, It is dated to 1777."

In 1800 M. BRONGUIART became the director of the manufactory. He was encouraged by Napoleon I to establish a museum completely devoted to ceramics. He issued orders to furnish the samples to museum and he also applied to various manufacturers of Germany. This collection made by the director under the encouragement of Napoleon formed the nucleus of the present expensive museum "DE MUSEE CERAMIQUE". Till 1760 white porcelain was made with soft paste, consequently the researches proved the availability of Kaolin in France and later hard paste was prepared out of this Kaolin. After Kaolin has been discovered Sevres industry in France reached its perfection.

The above account reveals the fact that the Sevres factory, from the beginning, developed under the liberal patronage of Louis XIV, XV, XVI, Napoleon and Colbert the minister of Louis XIV, Mme De Pompadour wife of Louis XV, Marie Antoinette the wife of Louis XVI in France. A Number of pieces had been distributed as presents and were also sold to the various contemporary kings. Decrees were passed and renewed timely one after another banning the creation and growth of the factories without the royal sanction. If any factory was so started it was punished by levying penalties and imprisonment. Fortunately, the Salar Jung Museum possesses some of the original pieces of the Sevres industry with factory marks unrivalled in workmanship. There is no doubt the museum also houses some of the pieces without marks; probably they can be identified as the copies prepared afterwards and also two or three pieces prepared by some unauthorised industry in the beginning of the first quarter of the 19th century. There is an opinion that some of these pieces are part of the presentation set, which, according to factory register of sales, was presented by Louis XV to Tippu Sultan of Mysore in 1788."

As per the reference quoted above, a few vases, plates etc. were presented by Louis XVI to Tippu Sultan of Mysore in 1788 and not by Louis XV to

Tippu Sultan. Let us discuss this controversy in the light of the marks available on the exhibits of the museum. Before going further it may be necessary to clarify the date and history of Tippu Sultan so that one may be able to find out whether he was contemporary to Louis XV or Louis XVI.¹⁰ Tippu Sultan was born in 1753. In 1767, in the invasion of Carnatak he commanded a corps of cavalry and fought in the Maratha war of 1775-79. On the out-break of the First Mysore War in 1780, he was put at the head of a large body of troops and defeated BRATHWAITE in 1782. He succeeded his father in 1782 and in 1784 concluded peace with the British and assumed the title of Sultan. When the British entered Mysore in 1790, he fought with them and was compelled by the victory of Cornwallis near Seringapatam to cede half his dominion in 1792. When the British renewed hostilities in 1799, he was finally killed in the battle of Serinagapatam. When Louis XV of France was alive, Tippu was only a minor, and his father Hyder Ali was the Sultan or Saheb of Mysore. Therefore, if any presents had been made by Louis XV to the king of Mysore, it would be only to Hyder Ali and not to Tippu Sultan, who was then just a minor. Secondly Louis XV died in the year 1774 and, therefore, these vases could not have been presented to Tippu Sultan in 1788. Therefore, the statement that these two porcelain vases having crossed L mark and S with four dots underneath as the presentation pieces of Louis XV to Tippu Sultan is unsatisfactory.

For the time being, let us assume that they were presented by Louis XVI to Tippu Sultan, as it is mentioned in the literature. It is true that Tippu Sultan was contemporary to Louis XVI, who made friendship with the French king, who had got the help of the French East India company to fight with the British at times. But, as we have discussed already, the Sevres vases, if they were presented by Louis XVI to Tippu Sultan, must bear the factory marks. It may be noted in this connection, that every original porcelain object, manufactured at Sevres factory of the king, bears the mark of crossed L with a letter, indicating the date of production.¹¹ In the year 1753 a letter was first employed to denote the year commencing with A and ending in 1777 with Z. Then a double letter AA began in 1778, ending in 1793. Soon after, the Royal Cypher was replaced by R.F. (Republican Francaise) with various signs upto 1817. From 1804 to 1809, a stencilled mark was in use "M Imple de Sevres" and subsequently other marks, according to the changes of Government. A close study has revealed that these two so-called presentation vases bear the marks of crossed L with S and four dots beneath. There is an excellent reference, which is quoted below, about this mark namely crossed L with S and four dots beneath.

"In 1813 dealers named Peres, and Ireland purchased the whole (unfinished) stock at a merely nominal price, and immediately took rooms close to

the Sevres factory and commenced decorating it being assisted by many of the old painters of Sevres. Here, they soon completed vast quantities of Pseudo-Sevres, which soon spread over Europe; they were so well finished that even royalty itself was deceived. In the following year 1814, a nobleman purchased DEJEUWNER, beautifully gilded and ornamented with painted medallions of Louis XIV and principal persons of the court. In the same year, it was presented to Louis XVIII as a valuable family relic and it remained for more than two years in the SOLON of the Tuilleries. Some doubts of its genuineness having arisen, the COMTE DE PRADEL sent the service to the Sevres manufactory and then more experienced persons discovered the deceit. The hybrid ornamentation soon betrayed its recent decoration. The principle PLATEAU belonged to an epoch subsequent to the revolution, the gilding was much inferior, the paintings too highly worked up for those of the 18th century and the monograms of the painters were fictitious. One of these was the letter 'S', followed by points not on the ancient list of painter's marks; it proved to be the mark of one SOIRON, an enameller, specially retained by the firm PERES. The king then placed it in the museum as a warning to others. At Sevres every piece of work is marked by the painter and gilder, accompanied by the double L and the letters denoting date."

Therefore, the above account reveals that if an object possesses a mark of CROSSED L and letters S, it is an article prepared by an unauthorised industry prevalent at the beginning and the middle part of 1st quarter of the 19th century, not of royal Sevres manufacture. The theory that these questionable two vases of the museum, which were traditionally ascribed as the presentation pieces of Louis XV or Louis XVI to Tippu Sultan becomes baseless, as these articles bear the mark of the unauthorised industry, which was not probably contemporary to Louis XVI. We shall discuss in the following description one of those two questionable vases.

Royal blue vase on bronze pedestal with a lid is decorated with the painting of hunting scene on one side and landscape on the other side. A gun, bow, arrow, bird etc. are also represented in two panels at the neck and bottom. The mark of crossed L and P inside with S and four dots at the bottom are signed as H. DESPREZ.' It can be safely dated to the first quarter of the 19th century.

The museum houses a considerable number of Sevres pieces, which can be dated to the period of Louis XV on the same evidences as discussed above. It is also traced that the museum possesses a good number of original Sevres pieces, which can be dated to the period of Louis XVI. There is no doubt that only a few pieces came to this museum, prepared by the above said unauthorised industry and belonging to the 1st quarter of the 19th century.

There are two interesting Sevres vases, which were supposed to be presented by Louis XVI to Catherine II of Russia, to which the reference has already been given. Blue vase with horn-shaped mask handles in gilt rim and also with the letter 'E' in the centre, formed of minute flowers and the Roman numeral II interlaced "E KATHERINE II" surmounted by the imperial crown is enclosed by two branches. The bust figure, probably Catherine II and stones, are also represented on one side of the object. Mark crossed L.

Due to the lack of any letter inside the crossed L, as it used for denoting the year in which it was made, it poses a problem to the scholars in this field with regard to its authenticity. It appears to be a fake or a copy.

The museum possesses besides the above a number of original Sevres pieces. The description of one of the vases is given below. It is a blue porcelain vase with lid on a fitted bronze pedestal with two curved handles representing acanthus leaf and mask motif on either side. Both sides of it are painted. On one side, there is a painting, representing two ladies and a male figure and landscape, on the other side encircled by rococo decoration, garland, wreath and flora, motifs in gold colour signed by L. BERTREN. The lid is fitted with a bronze knob. The rim of the vase is also fitted with bronze. Mark-crossed 'L' with letter 'M' inside in light blue colour.

The museum also houses some of the pieces belonging to the 1st Empire-period of France. The description of two such pieces is given below :-

This is the French Porcelain vase with lid fitted with two swan head shaped bronze handles resting on a fitted square bronze base on four clawed legs at each corner. The vase is painted on either side. On one side it represents seated Napoleon with, probably, Josephine and two ladies and a man, enclosed in a decorated panel and a landscape, on the other side signed, Mark M Imple de Sevres.

The other vase is in red colour with gilt handles on square pedestal. A painting of Napoleon on horseback with his soldiers in war in a decorated panel is represented. Eagle is also represented on the neck and pedestal. Sphinxes and other emblems are depicted in gold-coloured design, around the painting. On the other sides, there are the emblems of torch, and ring etc., in gold colour and Mark M Imple de Sevres. There is another similar vase representing the scene of his success in war in Egypt, with his soldiers on horse-back. In similar manner, the museum possesses a great number of original Sevres porcelain pieces, consisting of plates, cups, vases, figurines etc., belonging to the Napoleonic period with the emblems and marks. All these articles can be dated between 1804 to 1808.

The above account, tentatively, reveals that there are a number of original pieces of Sevres industry, corresponding to the reigns of Louis XV, XVI and Napoleon in the Salar Jung Museum. The museum also possesses two pieces of Louis XVI, supposed to have been presented to Catherine II of Russia. These appear to be copies. A close study of these and others revealed the existence of a very few pieces manufactured not by Sevres factory but by an unauthorised industry in the beginning of the 19th century. It also proved that the impression regarding articles, which were traditionally called as the presentation pieces of Louis XV to Tippu Sultan, is erroneous and they were found out as the pieces which were manufactured by some unauthorised industrial concern. The original pieces, which are identified and dated to the periods of Louis XV, XVI and Napoleon respectively are some of the outstanding decorative art pieces of the museum. Even though the museum possesses some copies of porcelain pieces the collection of original pieces outnumber them.

1. Curator - Criticism by Witterborg.
2. Royal Sevres China by EGAN MEW page 16.
3. "Porcelain" by Robert Schmidt page 62.
4. "Pottery and Porcelain" by Warring page 30.
5. Royal Sevres China by EGAN MEW page 21.
6. Ibid, page 43.
7. Ibid, page 21.
8. Ibid, page 21.
9. Royal Sevres Ibid, page 26.
10. Museum Souvenir by G. Venkatachallam page 11.
11. Royal Sevres by EGAN MEW page 43.
12. Encyclopaedia Britannica.

OTHER REFERENCES.

1. Manual of Pottery & Porcelain Marks by W. H. Hooper & W. C. PHILLIPS.
2. A history and description of the old French faience by M. L. SOLON.
3. Pottery through the ages by George Savage.
4. Notes on pottery clays by J. FAIRIE, F. G. S.
5. How to identify old China by Mrs. Willoughby Hodgson.
6. Choppers W Marks and monograms on European and oriental pottery and Porcelain - Edited by H. M. CUNDALL 1928.

A Rare Wan Li Polychrome

In a museum, which has earned deservedly high reputation as one of the best one-man collections in the world, representing a range of art from South Asia to Europe, it is, indeed, a difficult task to look for an individual specimen of art for its great rarity and merit.

A Chinese porcelain saucer plate of Wan Li period, exhibited in the Chinese Gallery of the Salar Jung Museum, can, undoubtedly, be classed as an object of great artistic distinction. Measuring about 22 cms in diameter, this plate attracts the attention of the onlooker with its prominent red and green colour-scheme. The decoration also depicts a sparingly used yellow and blue on a white ground, with a 'Death's head dragon' in the centre, surrounded by phoenixes interspersed with floral patterns, enclosed by a double ring in blue. Extending towards the lip of the plate are seen dragons and phoenixes, interspersed with floral patterns, enclosed by a blue ring. Flowers and birds (resembling parrots) in cartouches, interspersed with geometrical patterns, are visible under the lip. The 'nien hao' or the reign mark of the Ming Emperor Wan Li in blue characters, enclosed by a double ring in blue, is very conspicuously drawn on the base of the plate, having a slight rim.

Porcelain, decorated in multicoloured painted enamels, came to prominence during the Ming period (from 1368-1644 A.D.) in China. In fact the most prominent feature of the Ming Ceramics is the changeover from stoneware to porcelain and the substitution of decoration in polychrome enamels and underglaze blue for the single-coloured glazes of the Sung (960 - 1279 A.D.) and Yuan periods (1279-1368 A.D.)¹ The style of decoration of the plate strongly suggests that it is an example of Wan Li Wu ts'ai or Wan Li five colours'— a product of the highly evolved technique of painted porcelain of the Ming dynasty.

Ming porcelains, decorated in colours, fall into two general groups, known by the Chinese names 'San ts' ai' and 'Wu ts' ai' 'i.e. three' and 'five

1. *Ming pottery and porcelain - Soame Jenyns.*

colour' wares. Both the terms are elastic and not restricted to the precise number of colours indicated. The term 'three-colour' is reserved for those porcelains, of which the designs are outlined in threads of clay (Cloisonne fashion) incised, carved or pierced and washed in with coloured glazes. These glazes are usually applied in combinations of two or three with another as background, the precise number 'three' not being too rigidly observed. The term 'Wu ts' ai' (five colour) is applied by the Chinese for decoration in 'vitrifiable enamels' which, as the name implies, are coloured enamels of a very glassy appearance. Even here the term 'five colour' is not restricted to cases in which exactly five colours are used but applied to polychrome enamel wares in general. The enamels, like the glazes, are glasses, but containing more lead, they are more fusible. They are tinted with mineral oxides and fused on to the ware at a comparatively low temperature in a muffle kiln or stove. Much the same minerals are used as in the glazes and similar range of colour results: but the enamels are more manageable than glazes and better suited for intricate brush-work. The Ming palette comprises greens of several shades (derived from copper), yellow (often a cloudy, amber-colour, derived from antimony or iron), aubergine or purplish brown, derived from manganese), a turquoise green (peculiar to the Ming porcelain), a thin but rather opaque and often iridescent tomato red (derived from iron), dry reddish-brown pigment, which is used for drawing outlines and, covered with transparent green, to form a composite black enamel. These enamels could be applied direct to the unglazed body or 'biscuit', in which case their appearance does not greatly differ from that of the softer 'San ts' ai' or 'three colour glazes, but the more usual application in 'Wu ts' ai' or 'five colour' technique was in designs painted in enamels on the glazed porcelain, combined with underglaze-blue. The combination of underglaze blue and on glaze enamels was such a favourite one in the reign of Wan Li 1573 - 1619 A.D. that it is generally known as Wan Li Wu ts' ai or Wan Li five colour ware.²

The saucer plate under consideration shows all characteristics of a fine example of Wan Li Wu ts' ai with the brilliant vitreous appearance of its red and green enamels obvious on the glaze, and the sparingly used yellow with its characteristic dulness, tending more towards amber colour, and the blue used in underglaze. Since this decoration is done on a white ground; an examination of the glaze on the un-painted portions of the body of the object revealed a fine evenness and a peculiar oily sheen, a sure sign of one of the superior classes of Chinese porcelain wares. Hobson mentions that in some of the finer porcelains, obviously made for Imperial use, the glaze has a pecu-

2. *Chinese porcelain and Wedgwood pottery with other works of Ceramic art* - R. L. Hobson.

flar oily sheen due to an infinite number of minute depressions on the surface. This is, perhaps, the Chicken-skin glaze of the Chinese texts.³ It may be pertinent to mention here that, although in the three and five colours, the body is often found entirely covered, there is an equally large class in which these colours are used together on a White ground, as flowers and conventional or figure designs.⁴

Although the superior quality of the potting, glaze and the enamel colours testify to the object being of a superior class, the figure-subjects on plate viz. dragons, phoenixes, and birds show that the drawing is unrestrained and not befitting an imperial ware. None of the dragons shows five claws, (as the five clawed dragon is the symbol of Chinese emperor) and the birds drawn on the lip are not nearer to realism, which places them anywhere between parrots and parakeets. The Death's head dragon in the centre of the plate is also devoid of five claws but very much agrees in treatment with that on a similar object, exhibited in the British Museum London.⁵ The geometrical pattern on the lip of the plate also agrees with that of the example cited above.

Coming to the dating of this object, it has to be said that the Chinese marks, appearing on the porcelains, may be classified as 1) Date marks 2) Hall Marks, 3) Marks of commendation, felicitation etc., 4) signatures and 5) symbols. The mark is usually found under the base of the vessel, though occasionally it appears on the side of the lip. The plate under consideration bears on its base the commonest form of date-mark, which is the nien hao (reign name of the Emperor) in characters written and enclosed in a double ring in underglaze blue. It reads "wan li nien chih" made in the period Wan Li the great Ming. The Emperor Shen Tsung, son of Lung Ching, who succeeded his father at the age of ten, under reign title of Wan Li, reigned for 47 years (1573-1619 A.D.) The form of nien hao conforms to a regulated pattern, although the name of the Emperor changes with each succession, and sometimes, the name of the dynasty being occasionally omitted. The 'nien hao' system is defective in the sense that it does not give exact date of succession of an Emperor but it only indicates the regnal title. However, the mark of Wan Li, on the base of the plate further lends support to the object being classified as a genuine work of the Ming period. The rare quality of its glaze, the brilliance of enamel colours, and the drawing of figure subjects,

3. *A guide to the pottery and porcelain of the Far East British Museum.*—R. L. Hobson. pp. 40, 41.
4. *How to identify old Chinese porcelain*—Mrs. Willoughby Hodgson.
5. *fig. 50—Stand red and green family—Wan Li Mark*
A guide to the pottery and Porcelain of the Far East
British Museum.

which have been cleverly intersected by means of underglaze blue rings imparting rare elegance, bear ample testimony to prove that this object, truly, is a very fine and rare specimen of ceramic art.

It is pertinent to mention here that the experts, who have visited the museum, are also of the view that this saucer plate is a rare Wan Li poly chrome, which is indeed a prized exhibit in the Chinese collection of the Salar Jung Museum⁶.

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6. Mr. Soame Jenyns from British Museum London, who visited Salar Jung Museum during January 1965, at the request of the Salar Jung Museum Board for identifying and dating the Sino Japanese collections of the Museum, examined this plate. He is of the opinion that this could be considered as a possible imperial piece. Mr. John A. Pope, Director of Freer Gallery of Art, Washington D. C., who came here on a private visit during August 1966, while examining our Sino-Japanese collection, saw this plate and agreed with the view held by Mr. Jenyns.

'Celadon'-Its Meaning and History

Visitors to the Salar Jung Museum take considerable pleasure in viewing the Chinese ceramics, called the "Celadon-Ware". These hard-bodied and green glazed stone-ware objects from China, consisting mostly of bowls, plates and vases, afford a pleasant sight to the visitors on the basis of their smooth Jade like glazes, simple but dignified shapes and designs, skilfully added to them in a variety of ways. For perfect potting and superb glazing, Celadons admit few rivals in their field. Celadons are, however, esteemed for other reasons: the important being that, they possess the property of detecting food-poisoning by splitting or breaking, when brought into contact with poisoned food!

Celadon, as has been said 'at the start, is a hard, dense, porcellanous stone-ware containing 'Kaolin'-one of the two elements of procelain. Obviously it is not porcelain. While the body of the procelain is white, the body of Celadon is reddish brown. Glazes containing metallic oxides, giving out various tones of green, cover them. Some important colours of glazes are: Pale green, mild blue, Pale blue and bluish green. Both the glaze and body are fired, unlike porcelain, only once. The glaze is the most endearing part of Celadon-ware. It has a Jade-like softness. At the first look, the Celadons give the impression of objects made out of green jade. In fact, the achievement of jade-like quality was the constant aim of Sung potters. Glazing was done either by placing the object upside down or in its normal positions: in the former case glaze around neck is thick and in the latter case necks are thinly glazed. The objects made include plates, bowls and vases, but rarely figures. Occasionally imitations of ancient Chinese bronzes were made. The shapes are simple but dignified. Glazes exude a certain calm and contemplative warmth.

In popular mind, the word 'Celadon' is associated with the Chinese. The word 'Celadon', curiously enough, is not of Chinese origin. A number of theories have been put forward with regard to its origin. According to one theory, which is accepted by a number of Chinese scholars, the word is deri-

ved from a French character, named Celadon, who appears in a French drama—"L'Astree" (by D'urfe 1567-1625) clad in a mantle, the colour of which exactly approximated to the grey green stone-ware objects of Lung-Chuan-Yao, the well known Chinese manufacturing centre.¹ At this time, the wares of Lung-Chuan-Yao became very fashionable in France. As the Chinese name was difficult to pronounce, the name, Celadon was readily adopted. A French dictionary, published in 1690, also gives the meaning of Celadon as Grey Green. Another explanation is that the name Celadon is a distorted version of Sala-Ud-din, Sultan of Egypt, who is reported to have presented in 1171 A.D. a set of forty pieces of Chinese porcelain to Nuruddin, Sultan of Damascus, on his reconquest of Palestine. These porcelain objects must, undoubtedly, be the products of Sung manufacturing centres, like Lung-Chuan-Yao. These objects soon became popular and were called as Sala-ud-din, Saladin and Celadon plates. In India the Celadon objects became popular under the names "Martabani" and "Ghori" also. The word "Martabani", according to E. H. Hunt, 'Seems to have been the trade-name, used by the Arabs and is derived from the port of Martaban near Moulmein'.² From Martaban, products similar to Celadon, are said to have been made and exported. The word "Ghori" is used very much in the Deccan to denote the Celadons. Though one is not sure whether the Ghori Emperors of India were lovers of Celadons, the name, certainly, is derived from the town of Ghor on the Persian-Afghanistan border, where Celadons were held in high esteem and the manufacture of similar products was even attempted.

Regarding the poison detecting potentialities of the Celadon dishes it may be noted that although it has no scientific basis of the belief that Celadon objects detect food-poisoning, this impression persists in popular mind. Again, it was believed in ancient China and Sumatra that Celadons contained the quality of splitting or breaking, when they came into contact with poisoned food. *Three ideas were current in Hyderabad at least, according to E. H. Hunt, to show that the Celadon dishes detected food poisoning. These were: I "If poison was put in the dish, the dish used to crack. II." The specific quality of the dish is that it at once changes its colour if any poisonous food which has the colour, smell or even taste of poisons put into it. III. "That when any poisonous food was put into the dish, the smell and colour of that food atonce used to be changed".* This supposed virtue of finding out poison appealed most to the Arab traders, who took large quantities of Celadons to Middle Eastern Countries and sold them to rulers and nobles. Thus, we have it on record that the Sultan of Egypt sent to Lorenzo De Medici, in 1487,

1. *Mrs. Willoughby Hodgson in her book "How to identify old Chinese Porcelain" p. 31 and Mario Prodan in "Chinese Art" pp. 103/104.*
2. *"Old Hyderabad China" by E. H. Hunt p. 13.*

some specimens of Celadons, capable of detecting food-poisoning³ The idea originated, according to some scholars, in the accidental cracks that might have occurred in some bowls and plates, which led to the belief that such marks were caused by poison. Chiefly owing to this belief the muslim rulers of Middle Eastern countries, who feared always poisoning, purchased large quantities of Celadons and assiduously spread the idea to dissuade prospective poisoners. Experiments conducted, however, showed "no change whatsoever caused by any ordinary poisons either in the colour of the plate or in the food."⁴ (E. H. Hunt)

Manufacture of Celadon, along with the porcelain, was extensively practised in China. The production of Celadons started in China during the Sung period (960-1279 A.D.) Lung-Chuan-Yao, a town between the Poyang lake and coast, attained world-wide fame for its superb Celadons. Its products found their way to different parts of the civilised world. Other well known centres of Celadon manufacture were: 1. Fu-yao 2. Ying-ching 3. Ko-yao. As early as in the 12th century A.D. trade in the Celadon objects with other countries existed. Arabs were the first carriers of trade both over land and sea. The manufacture was transferred from Lung chuan-yao to Chu-Chou. The products of this period were widely known and have been excavated at sites, as far - flung as "South East Asia, Korea, Japan, Iran, Iraq, India, Arabia and Egypt."⁵ Best qualities were also exported to European countries. In India during the rule of the East India company, the Celadon-ware became very popular and huge quantities were imported to meet the demand of customers.

Celadons exhibit a variety of decorations, done with great ingenuity, skill and care. Decorations, usually, consist of incised, impressed and applied relief ornaments, done commonly 'Under glaze' and rarely "Over glaze". One method consists in covering the body with a white slip and cutting the slips away in parts so that the design shows in the colour of the body. The whole body is then covered with a transparent glaze. Another practice is to cover the body with a brown glaze and cut parts of this away before firing so that the body forms the background of the design. The third important form of decoration is called 'crackling', which is obtained by quickly cooling the kiln after firing. While contracting, the object develops cracks in the shape of crab claws, fish roe or broken ice and many other delightful patterns, which are beautiful to look at. Naturalistic motifs and human figures appear in late Celadons.

3. "Old Hyderabad china" by E. H. Hunt. p. 8.

4. "Old Hyderabad china" by E. H. Hunt p. 11.

5. Metropolitan Museum of Art Bulletin, summer 1961 p. 9.

Salar Jung Museum houses a number of Celadons, belonging to Sung and Ming periods. The decorations, these pieces contain, are important for their variety. Especially appealing are the pieces with 'crackle' decorations. Other designs seen are : Incised, Impressed and applied reliefs.

The exhibit reproduced shows a Celadon vase from Salar Jung Museum displaying flowers and figures cut out of an over laid white slip. The piece goes back to early Sung period, in point of antiquity.

BOOKS CONSULTED

1. "Old Hyderabad China" by E. H. Hunt.
2. "Chinese art;" parts I and II by S. W. Bushell.
- 3. "Chinese art" parts I and II by William Willets.
4. "Chats on oriental China" by J. F. Blacker.
5. "Chinese art" Marlo Prodan.
6. Metropolitan Museum of Art Bulletin September 1961.
7. "How to identify old Chinese Porcelain," by Mrs. Willoughby Hodgson.
8. Metropolitan Museum of Art Bulletin, Summer, 1961.



The Bronze figure of Nataraja in the Salar Jung Museum

The bronze collection in the Salar Jung Museum, though not sizable when compared to its counterpart in some of the prominent Museums of India, presents some interesting and fine examples of art representing Chola and Vijayanagar periods. One such piece is a large-sized Nataraja figure encircled with a decorative Prabha. It is easily the most impressive among the Saivite bronzes of the Museum.

The provenance and other particulars of the figure are, unfortunately, not known. This is so because the late Nawab Salar Jung III, who acquired it for his collection, left no records relating thereto.

The Nataraja image has been acclaimed by scholars and connoisseurs of art as the masterpiece among the Indian bronzes. Dr. Ananda Coomaraswamy, while discussing the Dance of Siva, has rightly pointed out that "in time it became the clearest image of the activity of God, which any art or religion can boast of"

Under the patronage of the Chola rulers (A.D. 900 to 1300), the art of casting images in bronze received the greatest impetus. Most of the sculptures produced during the period of the Chola rule were Saivite, although Images of Vaishnavite deities were also produced.² The icon of Siva as Nataraja, indeed, captivated the attention of the Chola sculptor and the production of such images was prolific at some stage. The images of Nataraja produced during this period are exquisite creations of the art-world.

To cite an example, the Nataraja from Tiruvelangadu, which adorns the collection of the Madras Government Museum, is considered a classic example, showing "the most perfect presentation of rhythmic dance of the Lord."³

1. *Dance of Siva* - by - Dr. Ananda Coomaraswamy,
2. *Icons in Bronze* by - D. R. Thapar page - 19.
3. *South Indian Bronzes* by C. Sivaramamurti-page 54 and fig. 24, 25A.

The Vijayanagar rulers encouraged the art of metal workers and continued the tradition of the Chola School. Though, we come across beautiful pieces of the Vijayanagar style, they lack the grace and plasticity of the Chola School.

The Nataraja, under discussion, dancing in the 'Anandatandava,' depicts a vitality and a freshness of vision in the modelling, identifiable with the Chola tradition. The even flow of rhythm and the subtle treatment of the features give the effect of great compactness to the figure, which makes it all the more attractive. Thus, it compares favourably with the other famous Nataraja figures of the Chola period, preserved in the leading Museums of India and abroad.¹ Judging from the point of view of style and iconography, the figure can safely be assigned to the early 14th century A.D. or the late Chola period.

DESCRIPTION OF THE FIGURE

The Nataraja figure under reference is 97.5 cm. in height (without Prabha) and 126.2 cm. with Prabha and 82.5 cm. in width. The image has four hands and three eyes; with right foot placed on the demon 'Apasmrapurusha' and left leg raised in 'kuncitapada' (see Illustration). He holds a drum in his upper right hand (damaruhasta) whereas his lower right hand is in 'abhaya hasta' with a cobra, coiled on forearm. The Upper left hand, holding the flame and the lower left hand is stretched across the body in 'gajahasta' pose.

The head-dress 'jatamukuta' is arranged schematically, with crescent moon (ardha 'chandra) on the left side and Ganga, the river Goddess, on the right side is represented in the form of a mermaid with her hands in 'anjali-mudra'. Two cobras are on either side of the 'mukuta'. He wears 'patrakundala' on the left ear and 'makarakundala' on the right.

The 'siraschakra'² is lotus-shaped, having seven petals, encircled within

1. *Most of the large Nataraja bronzes at present preserved in the Museums of the world belong to the Chola period. Sri C. Sivaramamurti also draws attention to the fact that large-sized figures seem to be the characteristic of the Chola School.*

¹ *Extensive researches made by the scholars in the field of Indian bronzes have made the task of identifying the bronze images possible on the basis of iconography, and also on that of the stylistic treatment of the figures.*

² *Treatment of 'sira chakra' has got close affinity with that of the late Chola period refer fig. 14 c of South Indian Bronzes by C. Sivaramamurti.*

a circular ring and a tassell dangling down and emerging from the centre of the 'chakra'. Nine short-coiled locks of hair hang over the back and the string of the necklace is formed as a barricade.

Siva wears a 'yajnopavita,' a thick chest-band, necklace, armlets, a ring on every finger and toe except on the middle one, foot bracelets (padajalaka). He wears tight-fitting garment (kati-sutra),¹ with a girdle round the hips with loops and tassels, hanging down on either side of the body.

An interesting feature, which is seldom noticed in other Nataraja figures, is a bowl (probably a begging bowl), suspended from the left shoulder. The demon is in the form of a dwarf, lying prostrate and holding a cobra in his left hand. Placed on circular lotus pedestal (padmasana) it is mounted on a square base.

Siva is encircled with a 'prabha', which is quite interesting. Instead of emerging from the lotus pedestal and forming a circle as such (the general feature in other known Nataraja figures)², the prabha here is almost 'apsidal', issuing from the mouths of sea-monsters (makaras), supported by two animal figures which, standing on either side of the pedestal, support the 'padmasana'.

Another noteworthy feature of the prabha is that whereas in other Nataraja images the prabha is joined by the flowing locks of hair spread out on each side by the movement of the dance, in the image in question, it is devoid of this. But the blank space is filled up by another artistic and decorative motif. Two elaborate creepers are suspended in such a way as to form an arch behind the head of Siva. The workmanship of the 'prabha,' is very impressive with 21 flames on either side. The central portion of the 'prabha' is also worked into two makaras with a lotus in between.

For a while, if the Nataraja figure is viewed without 'prabha', the figure compares favourably with that of the Boston Museum's Nataraja,³ in the treatment of modelling, facial features, garments, ornaments, there is a striking similarity between the two figures. The only point of difference

1. *Kati-sutra* suggests again that it is of the late Chola period and is comparable with figure 24 c and the Chandrasekhara image of Musée Guimet (Paris), dated to late Chola period. fig. 49 a and fig. 61 b of *South Indian Bronzes C. Sivaramamurti*.

2. See figures 27 a, 69 b and 70 a of *South Indian Bronzes* by C. Sivaramamurti.

3. *The Boston Museum Nataraja* is dated by Shri Karl Khandalwala to the 13th C. A. D. or late Chola Period.

is that the flowing of hair which is present in the Boston figure is not found in the Salar Jung Museum's image.

The Salar Jung Museum's Nataraja, in short, is excellently modelled and the sharper definition of the contours impress on us the rare compactness of the image. The figure is elegantly poised, with beautifully chiselled nose, with fleshy cheeks and the perfect proportion of the limbs and the smooth finish. All these were blended to make it an exquisite work of art belonging to the late Chola period.

Beautiful Kimkhab in the Salar Jung Museum Its History and Technique

Salar Jung Museum in Hyderabad contains a big collection of beautiful textiles, ranging from the 17th to the 20th centuries. Some of them are Banaras sarees with peacock designs on their borders, Aurangabad brocades, Dacca Muslin costumes, gold and silver embroideries with sequin work, Lucknow chikan Sarees etc. Elephant trapping, woven with silver and copper wires, fans, woven with silver wire on cloth background, wall hangings woven with silver wires etc. form the other important objects of the textile collection.

Topping these all is a gem of textile, a beautiful "Kimkhab" piece representing floral and parrot designs, woven with thin gold and silver, wire interspersed with pure green and red silk.

This "Kimkhab" "which" is displayed in the textile section of the Salar Jung Museum is identified as a "table cloth", based on the size of the fabric and the designs depicted. The size of the Kimkhab is, length 135 cm and width 69.5 cms. This Kimkhab table cloth is made up with thin gold and silver threads, interspersed with purple green and red silk.

Viewing from the border-sides, the design on the table cloth represents three creeper panels, having flower, leaves and parrots in different colours. In the centre panel, parrots are represented along with the creeper design. The leaves and stems of the creepers are executed in black coloured threads. The red coloured threads are used in representing flower designs. The central portion of the flowers are found embroidered in white silver threads. The creeper and parrots in panelled border are depicted in black colour threads on light green background. The creeper and parrot designs in panelled borders, run vertically on two sides, and horizontally on the top and bottom of the table cover. This type of three panelled creeper border is known by the name "Popet vela" which means a creeper with parrots worked in. In this design, the parrot heads are turned back and designed as if they were combing their wings or plumes. Besides the panelled border

the semi-medallion designs on four corners are embroidered with silver threads.

The centre-space of the Kimkhab is decorated with tiny flower and leaf motifs in light red and black colours respectively on light green background, touching one another and forming round panels. The design in the centre of the "Kimkhab" is called "Taramandal" or a constellation of stars. The curves of the creepers, flowers and tips of the leaves are meticulously embroidered.

It has been pointed out in the "Art and Industry Vol I" that the Hindus draw their parrots both ways but Mohammedans only with the heads turned backwards. In this particular "Kimkhab" piece of the museum parrots' heads are turned back. From this evidence we may conclude that this table cloth "Kimkhab" might have been woven by Mohammedans or the design of the cloth must have been supplied to the workers by muslim artists.

In fixing the date and provenence of this Kimkhab piece one has to depend upon stylistic grounds. The western Indian textiles of the 17th, the 18th and the 19th centuries were noted for their beautiful colour schemes in field and in the floral designs in bright and pleasing tones. The floral designs of the "Kimkhab" appear to have been outlined in black colour on light green base. The tradition of depicting birds continued till the 19th century in western parts of India. The floral and bird designs, represented in this Kimkhab piece definitely show the Mughal tradition. Parrots, creeper design and the Taramandal design clearly suggest the western Indian origin of the piece. In western India Ahmedabad and Surat are a few famous Kimkhab producing centres. On the basis of the stylistic grounds, this Kimkhab can be attributed to Ahmedabad, which was a popular Kimkhab producing centre in Gujarat and dated as far back as the 19th century.

After having dwelt upon the merits of the unusual Ahmedabad Kimkhab displayed in the textile section of the museum, it may be worthwhile to know the history and technique of Kimkhabs. Kimkhabs are, very often described as brocades. There is however, a slight difference between a brocade and a Kimkhab piece. A brocade is woven with gold and silver threads, where as the Kimkhab piece is woven along with the silver and gold threads and coloured silks are also interspersed here and there with a view to mark the design prominently.

The word "Kimkhab" means a woven flower (Kim-flower and Khab to weave) and constitutes the most gorgeous and highly ornamental fabric of India. S. G. watts in his book "Art at Delhi" described Kimkhab as the fabric of dream and explained, it as "Kam-little and Khab-dream"

In India places like Banaras, Murshidabad, Ahmedabad and Surat in the North, Trichinapally and Aurangabad in the South are few famous Kimkhab producing centres. Kimkhabs are used as table cloth pieces, saddle cloth pieces, marriage dresses of bridegrooms, covering for state carriages etc.

LITERARY EVIDENCES :

Ancient literature furnishes ample evidences, regarding the existence of brocades. Rigveda contains references about different kinds of textiles. References are available in the context of women weaving a garment (Rigv. II 38--4), elegant well-made garments (R. V. IX 107.9; V 29,15) as fit for honorary presents. In the Yajus and the Samaveda there are many allusions to clothing and in the late Vedic literature even gold cloth or brocade¹ is mentioned. (Taittareya Brahmana III--675), I.

Buddhist Jataka tales furnish much information regarding the existence of brocades before the Christian era. Kosayya—the silk cloth was most probably embroidered by gold. Kings wore turbans of gold. The cloth "Hiranya" mentioned in 'Mahaparinibbana Jataka has been interpreted as earliest equivalent of the present day zari work or Kimkhab.

'Megasthenese' says "Indian robes are worked in gold and ornamented with precious stones and there were also flowered garments made of the finest muslin".

According to "Divyavadana" dated to the Gupta period there is a reference about "Suvarna pravara" which means a scarf or dupatta made in zari, thus showing the existence of zari cloth in Gupta period.

The word "Stavaraka" occurred in 'Harsha Charita' and it is construed as a clear reference to the brocade. The "Stavaraka" contains figures woven with gold thread and beaded with pearls. In Bana's "Harsha Charita" it is mentioned that Stavarakas were used as the tops of canopies.²

Jain Kalpasutra literature is full of references about the existence of brocades. The "Acharanga Sutra" speaks of a scarf woven with gold threads showing geese pattern. Hemachandra, Jain monk in his "Dvyasraya Kavya" refers to a Suvarna Patta (Gold brocade).

Western Indian Gujarati paintings (Apabhramsa school) are another important mine of information regarding Indian Zari and Brocaded textiles.

Manuscript paintings of Gujarat contain evidences about gold zari and brocades. In these manuscripts we read about dhotis, cholis, etc. "The ground

1. *The Indo-Aryans-Gosha* Page 23

2. *Banaras Brocades* edited by Ajit Mookerjee.

of these textiles shows deep brilliant shades black, red, ultramarine and the motifs include geometrical designs, scroll work, bird and animal figures".³

From the above inferences, it can be understood that Gujarat seems to have been an important centre for Zari brocade weaving in the 15th century. These traditional crafts are still being practised in centres like Ahmedabad and Surat.

With the advent of Mughals, the art of the country received fresh impetus and new life. New designs and new forms exhibiting affinity with Persian art came to be adopted by Indian craftsmen during the sixteenth and the seventeenth centuries. More emphasis was laid on floral motifs as is evidenced by the brocades produced during that period. But the new decorations did not obliterate the old forms, particularly the textiles of Western India show a happy blend of both the native and Persian motifs-native traditions at times being prominent.

TECHNIQUE OF MAKING KIMKHAB

The principle of brocading is the most important feature of the art of producing Kimkhabs. Like brocades, Kimkhabs are woven on loom; with an additional shuttle or pencil which is carried in and out of warp threads according to the needs of the pattern.

Kimkhabs contain both gold and silver wires. In the early days gold and silver wires were used but of late, silk is being interspersed with gold and silver wires in the kimkhabs.

The original zari embroidery work is done with the use of silver wire coated with pure gold. The gold wire is known as kalabatun. The preparation of gold wire is an intricate operation requiring great skill, patience and practice. A thin bar of pure silver measuring about one and a half foot in length is first gilded by wrapping pure gold leaf around it and heating it in a furnace till the gold leaf completely fuses with the silver. Then the entire surface of the silver rod appears to be of pure gold.

The bar is then drawn into wire by pulling it successfully through round openings in thick sheets of steel plates fixed vertically. The wire is made thinner by drawing it through narrower and narrower holes in the draw plate, until it becomes as fine as human hair and many miles in length. The wire thus made is next flattened by hammering it on anvil. The gold wires prepared to a required size are wrapped over the silk thread to the required

3. *Banaras Brocades* edited by Ajit Mukerjee.

thickness and these gold wires are used for the embroidery of the most of the gold embroidered curtains. The same procedure will be observed in making the silver wire, except that the original silver bar is not covered with gold leaf. To weave the brocades, a more complicated arrangement of the loom is necessary than one required for ordinary silk weaving. A description of such loom has been given by O. Birdwood is as follows :

“A kind of inverted heddles called the naksha (design) is hung above the warp immediately behind the heddies, the other ends of the cords being fastened to a horizontal band running below the warp. Like the cords of a heddies, the naksh strings where they cross the warp have loops through which certain of the warp threads are passed. But instead of getting an up and down motion from treddles pressed by the weaver's foot, the naksha is worked from above by a child seated on a bench over his father's head. The little fellow holds a bar of wood and by giving it a twist draws up the cords attached to the threads of the warp, which according to the naksha or pattern are at any time to appear in the surface of the web. The weaver at the head of the loom adds variety to his design by working silks of diverse colours into the woof along with threads of silver and gold and thus the vision grows in the sight of the young child seated aloft.”⁴

To sum up, the Kimkhab table cloth displayed in the textile section of the Salar Jung Museum is attributed to Ahmedabad and it is ascribed to the 19th century, based on the style of the designs and weave.

4. *The Industrial Arts of India Vol. II* by G. C. M. Birdwood, Page 277.

Kalahasti Kalamkari Temple-Cloth Painting— its Origin, History & Techniques of Execution

Admiring the colourful kalamkari canopies hanging on the walls of the Salar Jung Museum, Prof. H. D. Sankalia once queried if they were not embroideries. Precisely that is the finest point about the kalamkari cloth paintings. They seem to be calculated to simulate embroideries. Familiar episodes from the Ramayana or Mahabharata, depicted in a series of miniature panels and painted in rich, deep, madder-red, indigo blue, yellow, green and black, interspersed with ivory white bands, captivate the eye at once

The word 'kalamkari', literally, means 'working with pen.' The kalamkari art may be described as the combination of dyeing and block-printing or printing on cloth with vegetable dyes, applied by means of blocks or a bamboo 'kalam' or pen. Block-printing implies wax-resist technique from which the Batik style originated. On the other-hand, in the kalamkari painted cloths, no wax process is involved. The entire pattern, consisting of mythological figures of gods and men in action, the floral, faunal and geometrical designs, is all hand-drawn in free style with the kalam, unlike the block printing work, where the majority of the work is done by printing with wooden blocks involving the complicated wax-resist process and only occasionally resorting to the kalam or brush-work to impart perfect finish and distinctiveness. The block-printed cloths may be mass-produced while the painted cloths can be done on restricted scale, as it demands individual skill and time

The art of kalamkari painting and printing on cloth is today alive at two places in Andhra Pradesh, viz., Kalahasti and Machilipatnam. Of these, Machilipatnam specialises in prints dealing in secular designs, catering to the house-hold need of bed-sheets, table-cloths, door-curtains as well as the Muslim prayer carpets with the conventionalised Persian Tree of Life design, while Kalahasti has, almost exclusively, limited its scope to the hand-drawn Hindu religious paintings with mythological subjects, often referred to as the temple-cloths, ceiling-canopies, sacred-cloths or simply as wall-hangings.

The Kalahasti kalamkari canopies are essentially religious in character. Dr. Sarasvati aptly likens them to the gay temple banners of Nepal and Tibet, *in conception and purpose*. They were and are used as canopies over the images of Hindu gods, and at marriages and other ceremonies. They are meant for hanging on the temple walls, covering the ceiling panels or draping the sacred car of the god during religious processions. Verily, the kalamkari painted cloths may be described as the multipurpose, sacred portable paintings.

The themes of the paintings are derived from the great epics and puranas like the Ramayana, the Mahabharata and the Bhagavata Purana, the favourite episodes being the 'Sita-Rama Kalyanam', 'Rama-Ravana Yuddham', 'Kaliyamar-danam', 'Rukmini Kalyanam', 'Dhruva Vijayam', 'Kiratajunyam' etc. Each episode is divided into a number of smaller panels, and each row of panels is divided by neat white stripes in which the story is written. "The convention of dividing the pictorial spaces in panels", writes Jagdish Mittal in his latest work, in connection with the early 18th Century miniature paintings of Ramayana hailing from Rayalaseema, which also gave rise to Kalahasti Kalamkari painted cloths, 'was favoured by the artists of Vijayanagara. This convention is also common in the Telangana scroll paintings....The convention has the great advantage of clear and simple narration and is eminently suited to the purpose of narrating the legends, for which these murals, scrolls and Kalamkaris were commissioned".¹

In the eighties of the nineteenth Century, the art of sacred cloth painting was practised at a number of places in the former Madras Presidency.* Madurai, Salem, Kalahasti, Palakollu and Masulipatam are some of the prominent centres.

At Machilipatnam, the temple-cloths used to be produced on a large scale in the past, but now it is given up in favour of the block-printed cloths. According to Havell², who made a comparative study of the temple-cloths from the above mentioned places, the Palakollu cloths³ were highly prized and

1. Jagdish Mittal, *Andhra Paintings of the Ramayana*, Lalit Kala Akademy, (1970)

*The last three places are now in A. P. Kalahasti, formerly in the North Arcot district, is now in the Chittoor district; Palakollu, formerly in the undivided Godavary district, now in the West Godavary district; and Masulipatam, now-a-days spelt Machilipatnam, in Krishna district.

2. E. B. Havell. 'The Printed Cotton Industry of India,' *Journal of Indian Art and Industry*, Vol. II, No. 19, pp. 18-20.

3. A temple-cloth from Palakollu dated 1840, measuring 25ft 6 in x 5 ft 7 in., is now in the Salar Jung Museum.

considered far superior to any other in drawing and graphic composition of the figures, and were well known for their remarkable colours, while those from Salem were inferior in execution. (The Salem pintados that were displayed in the Delhi Exhibition are said to be characterised by the paler colours, especially the lemon green which displaced the original brilliant blue ⁴) The Madurai temple-cloths were also coarse and were printed in two colours only, red and black, and "are at present very rare to get, except by favour of the priests."⁵ But they are said to be much inferior to those of Kalahasti ⁶ Furthermore, the Madurai artisan had switched over to the cheap imported alizarine dye⁷ to simulate the deep Indian madder red, which is the life-blood of this industry⁸. At Kumbakonam also where this art was once prevalent, the drawings were crude and the colours gaudy.⁹

Of the Kalahasti temple-cloths, Haveli speaks in glowing terms : "The best are produced at Kalahasti. The quaint illustrations of scenes from Hindu temple sculpture with the same richness of architectural framework and elaboration of jewellery. But apart from their interest, the wonderful effect the arrangement of colour lend to them, gives them an artistic value of a high order."

Although a considerable number of early 17th Century Kalamkari painted and printed cloths from Machilipatnam are still to be seen in the museums of India and Europe, rarely do we come across any example of Kalahasti painted cloth belonging to the period earlier than 18th Century. Partly it is due to the impermanency of the material and partly to the lack of preservation. But it is more likely that the art of Kalamkari temple-cloth painting had its beginnings at Kalahasti in the early 18th Century or in the late 17th Century.

4. George Watt, *Indian Art at Delhi 1903. Official catalogue of the Delhi Exhibition of Indian Art Manufacturers, 1902-1903*, pp 265-66.

5. G. C. M. Birdwood, *The Industrial Art of India, Vol. II, Piccadilly 1880*, p 258.

6. Edgar Thurston, *The Cotton Fabric Industry of the Madras Presidency* (quoted by Watt)

7. "The active principle in madder is alizarine, which is obtained from it by a fermentative process. After the synthetic production of alizarine the natural source of the dye ceased to be drawn on..." Edgar Thurston, "The cotton Fabric Industry of the Madras Presidency", *Journal of Indian Art and Industry, Vol. VII*, p. 21.

8. George Watt, *op-cit* p. 279.

9. Pupul Jayakar, *Indian Printed Textiles, All India Handicrafts Board, Ministry of Commerce and Industry, Government of India, 1954*. Pupul Jayakar says that a family of craftsmen are still producing the religious cloth under the patronage of a local 'math', at Kumbakonam.

Some of the eminent European savants like Bidle, Birdwood, Havell, Thurston and Watt, who were sympathetic lovers of Indian arts and crafts, were not slow to recognise the worth of Kalahasti temple-cloths, and it were they, who aroused public interest and created taste for this folk-art by writing monographs and in academic art journals, and also by acquiring some of the best specimens for being displayed in the international exhibitions and the prominent museums of India and the Continent.

There are atleast three 19th Century kalamkari temple-cloths in the possession of Victoria and Albert Museum, London.¹⁰ One of them, with illustrations from the Ramayana, and the Telugu inscriptions, written in the thin stripes of white background, seems to be a typical product of Kalahasti.

An impressive collection of palampores, both block-printed and hand-painted, were displayed in the Madras section of the Indo-Colonial Exhibition, (London), 1886. Quite a number of them were sold out and some selected pieces were returned to the Madras Museum. Among them there are two canopies from Kalahasti, with illustrations from the Ramayana and Mahabharata, measuring 6 ft. by 6 ft. and 13 ft. by 11 ft., and priced Rs. 12 and Rs. 35 respectively.¹¹ "As a striking contrast to the (above) Kalahasti canopy cloth," writes Edgar Thurston, who had been the Superintendent of the Madras Government Museum in 1896, "the Madras Museum possesses a cloth of similar type, with scenes from the Ramayana (manufactured at Tadpatri),¹² in which the artistic effect is ruined by the liberal use of hideous violet and green aniline dyes¹³, which stand out in bad contrast with the indigenous red and blue vegetable dyes."¹⁴

The same authority, who interviewed the Kalahasti artisans states that the demand for the hand-painted cloths, had declined greatly at the close of the 19th Century owing to the importation of cheap British printed cloths, which were substituted for the former. A cloth costing Rs. 30 to Rs. 35 fell down to Rs. 8 to Rs. 10., with the result that the artisan could not earn even 4 annas a day. A clear illustration is that a temple cloth measuring 15 ft. by 7 ft., consuming a month in its preparation, would fetch only Rs. 12.¹⁵

10. Pupul Jayakar, *op. cit.* 26-29. Also compare the striking photograph of it reproduced in *The Textiles and Ornaments of India* ("Museum of Modern Art", New York, 1953), pp. 60-61.

11. Edgar Thurston, *op. cit.*

12. Tadpatri, now-a-days spelt Tadipatri, is in the Anantapur district, A.P.

13. Aniline dyes are the coal-tar or synthetic products.

14. Thurston, *op. cit.*

15. *Ibid.*, p. 30.

Attention has been drawn to one more Kalahasti painted cloth, measuring 11 ft. 3 in. by 6 ft., which was in the Madras Museum collection.¹⁶ The drawings are crude but the arrangement and colouring are said to be effective. Apart from the predominant red and black on a white ground, blue, yellow and green are also used in small quantities. Hadaway gives another photographic reproduction of a Kalahasti temple-cloth marked by its neat execution and bold patterns. The arrow-like 'kangora' design is very effectively used. Some of the major episodes from the Mahabharata are depicted.¹⁷

The Raja of Kalahasti is reported to have had in his possession a 'magnificent' mythological hand-painted cloth, costing "many hundreds of Rupees," for use on State occasions.¹⁸ If this was the same cloth, which was lent by the Raja of Kalahasti to the Loan Collection of the Delhi Exhibition, it was believed to be hundred years old, i. e., going back to late 18th or early 19th Century. Of this, the Official Catalogue says: "The ground is white and pattern almost entirely in soft but bright madder red, the spaces for the various scenes being richly canopied in foliage."¹⁹ Sir George Watt calls this specimen as "an admirable example" and as "one of the finest ever produced" at Kalahasti. Comparing the contemporary pieces from Kalahasti, Salem and Madurai at the Exhibition with the older one lent by the Raja of Kalahasti, Watt goes to state that "they will abundantly confirm the depravity of modern taste that is everywhere dominant in South Indian Art."²⁰

One Arni Changayya, a master-craftsman of the kalamkari painting from Kalahasti was honoured with a medal for his outstanding canopies displayed at the Delhi Exhibition.²¹ Some of the ceiling cloths with mythological figures, which were displayed in the Main Transept of the Delhi Exhibition are "in large patterns, the human forms being in brilliant blue and bright yellow with the background in dark claret colour."²² One of the painted cloths by Arni Changayya, which is said to be one hundred years old, showing Krishna

16. *W. S. Hadaway Cotton Painting and Printing in the Madras Presidency, Madras (1917), fig., 43.*

17. *Ibid., fig., 44.*

18. *Thurston, op. cit.*

19. *Watt, op. cit. p. 26.*

20. *Ibid.*

21. "Kalamkari Temple Cloth Painting of Kalahasti," *Selected Crafts of A. P., part VII, A(1), Census of India, 1961, p. 40.* But the Official Catalogue of the Delhi Exhibition records the name of the recipient of third prize with Bronze Medal as Changalrayudu, and not as Changayya as mentioned above.

22. *Watt, op. cit. p. 265.*

with his eight consorts, has been supplied to the Kalahasti Pilot Production-cum-Training Centre by the All India Handicrafts Board.²³

In the National Museum, Delhi, an early 19th Century temple-hanging, measuring 203.4 cm by 193 cm, with episodes from the Ramayana, is on display. Its provenance is not known.²⁴ The National Museum has in its possession another temple-cloth from Kalahasti, with the 'Krishna-leela' theme, painted in red, blue, yellow, green and black colours.²⁵ The Indian Museum at Calcutta also displays a Kalamkari temple-cloth with illustrations from the Ramayana epic.²⁶ This piece seems to be a product of Kalahasti.

There are three charming Kalahasti Kalamkari temple-cloths adorning the walls of the Salar Jung Museum. One of them is larger and also older than the other two pieces. The larger one measures 296 cm by 330 cm, while the other two 269 cm by 132.5 cm, and 269 cm by 131 cm respectively.† (See Pl. I and II).

Though the museum records do not give a detailed account of the provenance and the period of production of the painted cloths, a cursory glance at these tapestries convinces one that these could have been painted by no one else than the Kalahasti artisan. The stamp of Kalahasti school is unmistakably detected there. It is revealed in the treatment of the human figure, with prominent nose, large eyes, supple limbs, profusely ornate with jewellery and the costumes full of designs. The designs represented on the garments of the human figures, made of intricate geometric patterns, minute dots and flowers, which serve as an impressive background to the cloth-painting as a whole, is a characteristic feature of the Kalahasti temple-cloth paintings.

The separation of a row of panels from other rows by means of white stripes devised to *write the legend in*, is peculiar to Kalahasti cloths. At other places like Palakoltu, where the art of temple-cloth painting reached high water-mark, it is not customary to make any special provision for

23. **Selected Crafts of A. P.**, plate. I.

24. **A Brief Guide to the National Museum, New Delhi.** (1962).

25. **Selected Crafts of A. P.**, *Frontis Piece*.

26. **Indian Museum General Guide Book.** Calcutta. (1959).

† After writing this paper, I have come across a magnificent Kalamkari temple cloth from Kalahasti, preserved in the stores of the Salar Jung Museum. Dated to early 19th century, it is larger and more beautiful than any of the above three pieces on display, measuring 437.5 by 412.2 cm., and depicting the theme "Sampoorna-Ramayana".

writing the story; instead the descriptive appellations are inscribed directly on the paintings, while at Kalahasti, the very method adopted to distinguish the rows of panels is cleverly used to heighten the decorative value of the pattern as a whole. Further, the round Telugu characters, occurring at regular intervals in two or three uniform lines, add to the beauty of the painting.

The traditional designs like 'kargora', the 'pilli adugu' (Cat's foot step) the typical lotus flowers, and above all, the predominant madder-red background, point these canopies to be Kalahasti (see pl V fig 3, 4 and 5) In the Kalahasti canopies, the painting in the large central panel is usually unconnected with the main story which is told in smaller panels. Thus we see in the two of the Salar Jung Museum cloths, where the *Mahabharata* story is depicted, the central panels show Vishnu-Sriranganyakulu reclining on the Adishesha and surrounded by his celestial devotees. (see pl. III) In the third cloth, the central panel depicting the Sita-Rama Pattabhishekam, after the victory over Ravana, though taken from the Ramayana, is far removed from the main episode which is chiefly concerned with the Putra-Kameshti Yaga of Dasharatha. (Plate III—Illustration)

The larger of these cloths appears to be older than the other two. The cloth is worn out and torn at places and the colours tarnished while in the other two smaller pieces, the colours are still brilliant and the cloth is in a better condition. The drawing of human figure is clearly superior to the ones on the two smaller specimens. The arrangement of scenes is more orderly in the former. Considering the style and the condition of cloth and painting, the larger canopy may be assigned to the early 19th Century and the smaller two to the late 19 Century.

The colour-scheme includes the deep and soft madder-red, blue, black and yellow as well as ivory white. The general background of the painting is light red as distinguished from the deep red used for the human figures. In the smaller two pieces no green is to be seen while in the larger one it has faded out beyond recognition. The face, thorax and the arms of the human figure are filled with the above colours and sometimes allowed to retain white, the original cloth colour. No consistency is maintained regarding the use of a particular pigment to a particular character throughout. Thus we have Bhima shown in different colours in different panels.

The variety of designs shown on the costumes is dazzling. The artist has taken care to show the head-gears of the classical heroes. It is only appropriate that Dharamaraja in the guise of an ascetic wears only plaited hair style while Bhima and other wrestlers wear cap-like head-gears with top-

knots, and king Virata a 'Kirita-makuta'. Both the male and female figures are decorated with a number of personal ornaments which have their counterparts in the Telugu literature of 18th and 19th Centuries. Among the jewellery represented are the crowns, the ladies head ornaments, and ear-ornaments, the necklaces, bracelets, wristlets, finger rings, and anklets.

One of the smaller cloths depicts the same story as on the larger canopy from the Mahabharata, but much abridged, with disorderly scenes and bad calligraphy rendered in unintelligible language. The other one has taken the episode of 'putra-kameshti' from the Ramayana. Both these canopies appear to be the work of two contemporary artists if not a single craftsman. Further, the artists of these two smaller canopies are apparently less capable men who would not take any pains in drawing, colouring, writing, or even in such minor things as arraying the scenes in sequence, although considerable attention has been paid towards the border designs.

All the three canopies auspiciously begin with an invocation to Vighneswara, the Lord of Impediments, to make their project smooth and devoid of unforeseen obstacles. The larger canopy purports to tell the episode, the 'Dakshina-Gograhana' from the 'Virataparva' in the Mahabharata. This part of the story is extremely popular with the Telugu-speaking folks since its translation from the Sanskrit Mahabharata by 'Kavibrahma' Tikkana, the supreme master of Poetic artistry, who gave it a touch of originality transcending it from the narrow limitations of a mere vernacular rendering.²⁷

The figures are full of action and to know the story it does not require any patient regarding of the inscription. The moment one glances at a particular scene one knows what it is. The Pandavas who are bent upon entering the service of the King Virata during their one year of 'ajnatavasa', listening to the puranas and parting with Dhaumya, their paurohita, paying their obeisance with holy circumambulation to the sacred 'Sami tree and placing their divine weapons on it, invoking their 'ishta-devatas' who bestow on them the disguises they desire to have so as to conceal their identity, or their taking up service with Virata's Court—Dharamaraja as his courtier and confidential advisor, Bhima as the imperial chef de cuisine, Arjuna, now under the assumed name 'Brihannala', as the dance-master for the king's daughter, Nakula and Sahadeva as the chiefs of the Royal horses and cows, and Draupadi as 'sairanohiri' or the queen's maid—is a story too well known to relate.

27. *The trs. of Mahabharata is the first known Telugu work. It was the work of three great Poets : Mannaya, the first Telugu Poet (11th Century : trs. first 2½ parvas); Tikkana (13th centry: trs. 15 parvas); and Errana (14th centry: trs. the remaining portion in the 3rd, Parva).*

Again, the contest of the tigers and the wrestlers with Bhima under the name 'Valala', for the Imperial pleasure (see Pl. IV) and the episode of Kichaka's falling in love with Sairandhri and his demanding Sudeshna to send her to his place, his futile trial to outrage the modesty of Sairandhri when she is sent to him for wine and his restless waiting in the natyasala only to meet an ignoble death secretly at the hands of the mighty Bhima-are all told powerfully in scene after scene. Gradually the story reaches the climax with telling effect with the war scenes wherein the Kaurava heroes capture the Royal cows of Virata, the appeal of the frightened gopalakas to Uttara the crown-prince, the latter's persuasion of Brihannala to become his charioteer and later his disgraceful flight at the sight of the invincible army of the enemy, and his capture by Brihannala who exhorts him and breathes courage into his chicken-heart by revealing his true identity and taking up arms himself, and Prince Uttara's stealing of the head-gears of the Kaurava heroes who fell unconscious enmasse at the spell of 'sammohanastra' of Arjuna, and so on.

At the turn of this century there were very few hands at this art in Kalahasti. Attention has already been drawn to one Arni Changayya, who received a medal at the Delhi Art Exhibition. His two sons, Arni Kalappa and Changaivarayan, who were practising the temple-cloth painting till recently, are no more. And the other two or three craftsmen who were in the know-how of this art gave up the hereditary profession, as it was not paying, in favour of such mundane professions as lorry-driving which could "hardly go hand-in-hand with such a spiritually dedicated and artistic calling as temple cloth printing and painting!"

This art has practically died at Kalahasti by 1930s in the absence of the patronage of the local Zamindars and the temple-managements. The agency of Kishanchand Chellarams, a leading textile firm of Madras, which used to buy the temple-cloths in bulk, has also ceased to place orders with the Kalahasti artisans. When the All India Handicrafts Board came into the picture in 1958 with the firm resolution to revive the Kalahasti temple-cloth painting, there was none at the work. Finally the Board was able to locate the only surviving expert by name, Jonnalagadda Lakshmaiah, who took to teaching profession, and persuaded him to instruct the trainees in the Pilot Production-cum-Training Centre started at Kalahasti under its auspices. Twelve years have elapsed since then and now we know that this ancient art has firmly re-established itself and been enjoying a flourishing trade. One Cherumattur

Ramchandran, Munikrishna and Ramanalah are some of the leading craftsmen at this Government Centre today.²⁸

It would be heartening to note that the true kalamkari art as practised in the bygone days lives today at Kalahasti in pristine purity. Basically the technique is the same time-tested "science of dyeing". The craftsmen still use the same vegetable dyes. The art motifs and the intricate designs, the complicated processing and the colour-scheme, are all true to the age-old tradition.

The basic cloth on which the paintings are done is always, as a rule, a mill-made thick 'gadha' or 'kora' of 25 counts. The 'kalam' with which the figures are done and the dyes applied, is made of a bamboo stick. There are two types of kalam: One is a pen-like, sharp pointed kalam, and the other a brush-like instrument. Both the types of kalam are provided with a felt sponge just a little above the brush or the writing point, to regulate the flow of surplus ink or colour; the sponge either absorbs or releases the dye at a little pressure.

The main colours are all derived from the vegetable agents. The black dye which is essential for the drawing of the figures, is obtained by fermenting the molasses (sugar cane jaggery) and palmyra jaggery with iron-fillings. The red dye is obtained by mixing in boiling water the following substances, viz., the 'pobbaku' (a kind of water weed), the 'surudu' root bark ('sassafras albidum'), and the 'manjishtha' or madder root ('rubia tinctorum'). The yellow dye is produced by boiling the powder of dried 'myrobalan' flowers (terminalla chebula) in water. The blue dye is made of indigo solution mixed with alum in certain proportions. Soft green colour is obtained by painting blue over the yellow.

The method of application of these dyes is no less fascinating and complicated than the preparation of the dyes itself. The cloth has to be bleached, mordanted and boiled in water with dyes, a number of times, during this exacting process. In the first place, the cloth is washed of its starch and then soaked in the myrobalan solution and dried so as to be able to receive the black dye called 'kasam'.

28. For this information and also the below discussed kalamkari process, I have closely followed that excellent guide, **Selected Crafts of A. P.** For up-to-date figures & facts as well as the modern Kalahasti kalamkari specimens on sale, the best place is A. P. Govt., Handicrafts & Cottage Industries Emporium. A comparative study of the different dyes & dyeing processes prevalent at various 19th Century temple-cloth centres as described by Havell, Thurston, Watt & others, would be worth-while.

The artist first draws the outlines of the pattern, the figures and designs on the cloth with charcoal sticks made of tamarind twigs, and then draws the final lines with 'kasam' by means of a sharp pointed kalam. (See PL. V. Fig. 1 and 2). As a preparatory to the application of the red dye, which is the predominant colour in the Kalahasti cloths, those parts where the red is to be dyed - in the background or in the figures and designs - are mordanted with alum solution by means of a brush-like kalam. After washing and drying, the cloth then is boiled in water along with the dye substance for an hour or two with the result that the red dye gets fixed to the cloth wherever alum is applied. And to distinguish the soft red in the background with that in the figures, a process of 'differential dyeing' is followed. Wherever deep red is required, alum solution is again applied and the boiling of the cloth in water with red dye is repeated.

The red colour dyeing is followed by a week's bleaching of the cloth by soaking it in the sheep-dung solution during the nights and washing it by spreading on the river bed during the day time, to ensure the removal of the red dye which inevitably sticks to the cloth at unwanted places. Before applying any other colour, the cloth is 'dipped in a milk solution' so as to 'prevent the running of one dye colour into other already dyed areas of colour'.

The rest of the colours like yellow and blue are applied to the figures with the kalam. The yellow dye is applied to the cloth on places pre-mordanted with alum solution. Before the application of the blue dye, the cloth is again washed and dried and soaked in milk solution. When the dyeing of all the colours is finished, the cloth is washed and dried before it is finally ready for use.

Another aspect related to the kalamkari paintings, which is yet to be studied, is its relationship with the manuscript and mural paintings. It has been rightly observed that the fine art of painting in Andhra has been reduced to a folk art, a handicraft, during 18th and 19th Centuries; and that it continued to live in the folk arts like the kalamkari work, the 'Kasi-kavadi' panels, the figures on the 'Dasavatara' medallions and in the ornamentation of leather puppets and the Kondapalli toys.²⁹ Even the regular mural paintings at Lepakshi have imbibed 'many folk art styles' of Andhra and South India.³⁰ This reciprocal influence of the fine arts and folk arts can be further seen in the kalamkari paintings which are now admitted to be the extension

29. "Andhra Chitrakala". **Telugu Vijnana Servasvamu : Telugu Samskriti, Vol. III, (1959).**

30. **Amancharla Gopala Rao, Lepakshi, Lalit Kala Akademy, (1970)**

of the later Vijayanagara mural tradition as represented at Lepakshi and Anegondi.³¹

The paintings on the beams and ceiling of the Macherla Chennakesava-swamy temple, dated to early 18th Century, are related to the kalamkari style of painting.³² Of late, it has been noted that right in the Sri Kalahastiswara temple in Kalahasti itself, there are a number of early 18th Century wall paintings strongly recalling the kalamkari paintings in themes, treatment and human figure drawing.³³ At Kalahasti temple, almost all the main colours are used while at Macherla the colour scheme is limited to red and black on white background.

These above examples are sufficient to point out the affinity between the mural and kalamkari painting. The painter of the latter does not belong to the weaving community. It is not unreasonable to presume that the mural painter, keeping up the spirit of the time, had switched over to the cloth painting at the demand of the temples. He had struck a new avenue of art by discovering the art of painting on cloth, probably inspired by the early Masulipatam chintzes with hunting scenes and other paintings. The artist knew that it was easier to paint on cloth than on the ceiling sitting upside down precariously hanging in the air.

As a result, at Kalahasti and few other Saivite centres in South India, where the mural painters were flourishing under the patronage of the local 'maths', temples and zamindars, the temple-cloth painting came into vogue in the early 18th Century. The artist was at ease whether it is "world's largest" wall painting as at Lepakshi³⁴ or a temple wall-hanging with numerous miniature paintings.

The illustrated manuscripts in South India are still scarce. An attempt has been made to publish for the first time in A.P. with the works of Mittal such as the *Andhra Paintings of the Ramayana* and the *Telangana Scroll Paintings*. A study of these as well as other unpublished paintings in compa-

31. John Irwin, "Golconda Cotton Paintings of the Early Seventeenth Century," *Lalit Kala*, No. 5, (1959).

Lepakshi, Anentapur district, A. P., and Angondi, Mysore State.

** Macherla, Guntur district, A. P.

32. Abburi Gopalakrishna, "Vijayanagara Chitralekhanamu", *Kala* Vol. 3, (1969).

33. *Ibid.* Abburi, whose field knowledge is extensive, has been commissioned by the A. P. branch of Lalit Kala Akademy to prepare a monograph on the Folk Arts of A. P.

34. Amancharla Gopala Rao, *op. cit.*

ri-son with the Kalahasti kalamkari paintings may reveal interesting data. Mital suggests that the convention of dividing the pictorial spaces in panels in the scroll paintings and kalamkaris, might have come to them from the South Indian wall paintings. This relationship between the manuscript paintings and the kalamkari cloth paintings is far more pronounced in the miniature paintings of the Ramayana preserved in the Tanjore Sarasvati Mahal Library. They are painted on paper. The arrangement of the panels is exactly like in the Kalahasti temple-cloth so that one can not tell one from the other if the photographs of these paper and cloth paintings are kept side by side, but for the factor that in the manuscript paintings the figures are crowded. Just as in the temple-cloths, one row of panels are demarcated from the other by a band of white space in which the story is written.³⁵ These and many more obscure mural and paper manuscript paintings are awaiting a comprehensive study in terms of their inter-relationship with the Kalahasti and other kalamkari temple-cloth paintings.

35. L. Sitaramayya, archivist A. P. State Archives, who has been deputed to conduct the microfilming of the unpublished Telugu manuscripts at the Sarasvati Mahal Library, informs me that the above mentioned miniature paintings of the Ramayana were used as models for the murals of the Sri Rama temple at Kumbakonam. If this can be proved scientifically, it may go a long way in understanding the inter-connection between the paintings on paper, cloth and wall.

Care and Conservation of Mural Paintings

Mural paintings are pictorial representations done on the sides or walls of caves, buildings, palaces and monuments. The paintings are done upon the interior and upon the exterior walls also. Very often, therefore, while preserving an ancient monument, temple, archaeological site or cave, the problem of conservation of mural paintings is met with. Sometimes there is flaking of pigments at other times the plaster falls off, salts appear on the surface or there are deposits of smoke, grease or other calcareous matter that need to be cleaned off.

The problem of mural-painting-conservation is extremely tedious and difficult requiring a great imagination on the part of the conservator to solve it. For one the mural paintings form a part and parcel of the building structure and is subject to all those vagaries to which the structure is subjected to. Secondly, the work has to be done on the spot with paintings *in situ*. The mural paintings are much too large, unwieldy and unmanageable. The paintings cannot be transported to the laboratory for treatment, and if they are transported in sections for some reason, it is again a very delicate, risky and difficult process.

Before considering the problems of conservation and defects of murals, it will be advantageous to know the materials and the processes that are used to execute a mural painting. For a painting two things are essential—one the surface to paint upon and the other the paint or the pigment. Probably the first surface used by man to paint was the bare rock surface of the natural cave dwelling. There was no plaster, no ground, no priming. As the civilisation advanced plaster began to be used to smoothen the unheven surface of rock. The painting was then done on the plastered surface. This plaster was made of lime, gypsum, clay mixed or unmixed with sand, straw, hair etc. Gradually the bare rock was substituted by stone-blocks or bricks joined by mortar. Wooden planks and supports filled with stone rubble and clay also came to be used to form the walls. It was necessary to lay first the rough

plaster and finally a smooth coat or wash of fine plaster on which the painting was executed.

The paint used by man at the dawn of civilisation was only a solid piece of red ochre. Man, later on, learned to mix to his paint, adhesives like glue, gum etc. in wet condition. Many types of adhesives and mediums have been used to paint murals. The technique of frescoes was developed in which no adhesive was required and the paint formed an integral part of the painting surface. A mural, therefore, can be classified according to the material of the surface on which it is painted or according to the materials of the paint applied.

TYPES OF MURAL - PAINTINGS.

1. **Rock** : Painting done directly on rock without any ground or priming. In India the examples are prehistoric cave paintings in Pachmadi, Adamgad and so many other sites in Madhya Pradesh.

2. **Lime-Plaster** : For smoothening and filling up irregularities of rough rock or brick walls, plaster is required. Lime has been a popular medium for plaster since ancient times. It is used mixed with inert material like sand or just neat depending upon the method of execution and the use to which it is put to.

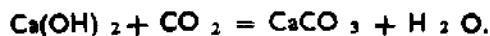
Common lime, CaO, is the monoxide of calcium, and when pure contains 71.43 percent of calcium and 28.57 per cent of oxygen. Lime does not occur in the free state in nature, the metal calcium always being found in a combined state in the form of salts, such as the carbonate, CaCO₃, and the sulphate, CaSO₄. There are various ways of preparing it but commercially it is obtained by calcination of the carbonate. The process consists in heating the calcium carbonate in nature found in the form of lime-stone, *Kankar*, chalk, marble or shells,



Freshly prepared lime is known as 'quicklime' or 'caustic lime'. On addition of water the quicklime is converted into the hydroxide of calcium and the product is known as slaked lime.



To make a fine plaster the lime is slaked for a considerable time, sometime even for months. The slaked lime on exposure to the atmosphere combines with the carbon-di-oxide of air to revert to calcium carbonate.



It is upon this quality of lime that the setting and hardening of plaster depends.

The initial stage in the setting of lime plaster is the drying of excess water, resulting in a cake of moderate hardness, when the plaster, though still wet, assumes a firmness and solidity. As the water continues to evaporate, carbonation goes on until the wall is completely dry.

Lime is partially or slightly soluble in water; as a result when the plaster is prepared from lime, some lime goes into solution in the excess water of the plaster. When the plaster dries, this solution of lime forms a bond with the coarse undissolved particles of lime to form a solid mass just like limestone. During the setting of the plaster, the chemical action of lime forming into carbonate is accompanied by a colloidal action. The lime in a gel-form surrounds the insoluble particles, upon hardening the gel-sets and cements the particles to each other.

The mortar used for plastering is composed of slaked lime and sand. Sand is used to add strength to the plaster and to avoid shrinkage in the plaster. If the lime is too rich or fat, there are likely to occur web like shrinkage cracks on the surface. Sand is often replaced by fine marble dust. In the mortar, particles of the inert material lie side by side and the gap in-between is filled by lime putty. When the plaster is setting and the drying starts, the drying and consequent shrinkage of the cementing material, namely lime, cannot reduce the bulk of the whole because the inert material remains in place. On the contrary, the shrinkage of the cementing lime putty will have a tendency to bind the inert sand or marble chips together.

For obvious reasons, plaster is applied on the wall in gradated layers, first the coarsest with enough inert material and in the last the finest. The final smooth surface which is rich lime is generally not more than 1 or 2 mm thick. The plaster on the wall is laid by throwing and spreading quickly with the help of trowels. Smoothing is done by a float. The result, specially for executing frescoes, should be semi-porous, water-absorbent surface rather than a dense, heavy solid mass. This is important for good cementing of pigments to the wall.

In India a process of taying plaster for painting has been popular, specially in Rajasthan. The surface, prepared with this method resembles marble and gives a cool and charming effect. Pure stone lime is dissolved in water and then strained. The sediment left in the sieve is ground and mixed with the pulverized white marble and water. This paste is applied on the wall, with a wooden spatula, and rubbed smooth with a polished stone. A second

coating of the paste is then given and polished as before. The surface is now further polished with agate. If the background is to remain white, the surface is washed with water containing grated cocoa-nut and rubbed dry with a soft cloth.

The design is drawn on the prepared wall with charcoal or powdered charcoal, pounced on it through a perforated stencil. Colouring of the design follows, only mineral pigments being suitable as they alone can resist the action of lime. A small amount of adhesive is added to pigments. The painting is done rapidly while the plaster-surface is still moist. When the painting work is over, the surface is again beaten all over with wooden trowel. Cocoa-nut water or water in which cocoanut is grated is applied on the surface of the painting with a cloth and rubbed. The surface is finally polished with agate stone still it acquired a high gloss.

The paint on lime-plaster is applied in two ways

1. Buon - fresco technique
2. Secco technique

This Indian method of painting resembles the Italian method of *fresco buono* being applied while the plaster ground remains wet, the pigments, therefore as in the Italian murals, are integral part of the wall surface and not an application to it. In the *fresco buono* technique the pigments are applied without any adhesive or binder upon a freshly prepared lime plaster. When the plaster dries it sets with a rock-like cohesion and the pigments dry with it as an integral part of the surface. The pigment particles become cemented to the surface lime in the same manner as when the lime particles bond with each other and with the sand.

Although the Indian process of wall painting resembles the Italian *fresco-buono* technique, there are certain differences between the two. In the Italian technique the pigments dispersed in water become incorporated in the surface of the ground as the plaster dries by the chemical action of conversion of lime to calcium carbonate. By contrast, in the Indian process the mechanical actions of beating, burnishing and polishing are very important for incorporating the pigments into the surface of the painting, in addition to chemical action, which, of course, is there. In the Indian process, the surface attains a high polish while the *fresco buono* surface is comparatively matt.

Painting is also done on dry lime plaster. For painting on dry plaster paint is mixed with a binding medium like glue, casein, gum, etc. for adhesion to the surface and is applied when the surface is dry. Examples can be found

In the Renaissance paintings of Italy. In India most of the paintings on lime plaster are done in the secco technique.

3. Gypsum: Gypsum has also been used for plastering walls and painting upon. This is the characteristic wall plaster of ancient Egypt and is known from early dynastic times. No evidence whatever can be found of the use of lime before the Ptolemaic period (323 to 285 B.C.). Where the wall was plastered with clay, this generally was coated with gypsum plaster, and where clay plaster was not used gypsum plaster was employed for the purpose of covering up faults and irregularities in the stone and for smoothing the surface before painting.

On gypsum the painting is done in dry with a binding medium mixed with the pigments.

4. Clay or Mud Plaster: For plastering, clay or earth has been used since ages. We can distinguish two types of clay: (a) One in which straw, rice-husk, hair or fibrous material is used to add binding strength (b) Other type, where no such foreign organic material is added.

The rough clay plaster is smoothed by applying a coat of thin lime plaster or wash only. The painting sometimes is done directly on clay without any other coating applied on it. The colour of the clay varies from deep brown to pale yellow to white depending upon the composition of the clay. Examples of this type of painted plaster can be found in the cave paintings of China, Central Asia and Japan. The paintings brought from Central Asia by Sir Aurel Stein and now in the National Museum collection are done on clay plaster composed of clay and fibrous material and a priming of lime wash. Some of the murals of Rangmahal, Chamba, transferred by the National Museum Laboratory from Chamba to New Delhi had a base of local clay, known as 'makol' which is steatitic in composition. This clay is white and in itself has no binding capacity. Starch paste is used to give it a binding strength. The painting is done directly on this 'makol' surface.

DEFECTS IN MURALS

With this background of the materials we will now consider the defects that generally are found in murals and which a conservator is likely to face.

The alterations that are caused in the wall-paintings can be enumerated as under :-

1. Appearance of a white superficial surface on the painting which may be due to efflorescence or exterior incrustations.
2. Fading of colours or alteration in appearance.

3. Disintegration or flaking of paint layer.
4. Cracks in the plaster and paint.
5. Disintegration of the plaster.
6. Detachment of the plaster from the wall-support.
7. Discolouration of paint surface because of foreign deposits like smoke or grease.
8. Appearance of black spots on the surface of the painting.

DETERIORATING AGENCIES :

The changes that come upon murals are caused by several agencies. The degree of alteration in the murals depends upon the combined effect of these agencies and the period of action. These deteriorating agencies mainly are :

1. Light.
2. Superficial incrustations.
3. Moisture.
4. Efflorescence.
5. Atmospheric pollution.
6. Biological growths.

We shall now try to analyse these agencies, the defects caused by them and the remedies that are available to rectify these defects.

1. Light : Light has an adverse effect upon all painted material causing fading of colours. A painting if exposed continuously to bright light will gradually fade away. The question of light attains an added importance for murals where, because of the construction and structure of the building or the position of the murals, sunlight may be falling directly on them. Sunlight not only makes the colours to fade but also helps in the deterioration and disintegration of material. Unfortunately once the colours have faded, there is no way to restore back their original intensity. The only way to save the unaffected paintings is to allow only that much of light as is necessary for viewing the murals.

2. Superficial Incrustations or Deposits : One can expect to find all types of incrustations deposited on murals. Clay, dust and dirt, earth deposits, spots of lime-wash or an uniform coat of lime-wash are met with very frequently. In fact the application of lime-wash by people ignorant of the artistic value of the paintings is probably one of the greatest causes for the loss of many beautiful murals. Recently, in Yugoslavia some murals of the

12th-13th century were discovered which were covered with lime-wash sometime after the 14th century and nobody was aware of the paintings till now. It was only when the surface lime wash was removed that the exquisite paintings underneath were visible.

The removal of lime-wash from the surface of a mural is no easy task. Use of acids even dilute cannot be resorted to, for first the paint itself is susceptible and secondly the plaster may also be affected. The lime coating is removed gradually with the help of a sharp knife and wet sponge. The job requires a great skill and patience.

Most of the murals transported by Aurel Stein from Central Asia were covered with patches of dirt and clay. The clay was not only disfiguring but also damaging to the paint. Centuries of neglect have caused the paintings to acquire these deposits. For removing these, use of any detergent or water alone was not feasible because the paint being gluemedium was affected by water. Finally, the incrustations were removed by soaking with a mixture of rectified spirit and distilled water and then scraping off gradually with a sharp knife.

Smoke is often found deposited on the walls of buildings, monuments etc. The deposition might be caused by the oil-lamps or torches placed by the side of the wall, accidental fire or the fire for heating the room. Sometimes the abandoned painted palaces are used for residential purposes and smoke from the stove is deposited on the walls.

Smoke is a solid suspension in gases of unburnt carbon, which gets deposited on the walls, obliterating and blackening the paintings.

Sometimes smoke gets settled inside the minute pores of painting and then it becomes extremely difficult to remove the black deposit. For removal of smoke organic solvents can be used.

Murals also, as the easel paintings, were being varnished for protection. The deterioration of varnish is accompanied by darkening and cracking. Darkening of varnish hides the details which ought to be showing. The extent of darkening of varnish can be judged only by comparing the area in the picture which has been cleaned with the area which is yet to be cleaned. The darkened varnish not only hides the details of the picture but also changes the hue of the paint. Its behaviour resembles that of a coloured filter. If the colour of the varnish has turned yellow, the blues of the painting resemble green, the whites as yellows, the red is nearer to orange and so on.

The treatment of this type of varnish-discolouration involves the removal of varnish. Before the cleaning work is taken up, the question of the solubility of a surface coating is to be settled. Laboratory tests and examinations are helpful in deciding which solvent is to be used for cleaning. An attempt is made to find out the suitable solvents for dissolving the surface coating and taking it up with cotton swabs. It is a delicate operation and necessarily slow.

Removal of discoloured and aged varnish means removal of the yellow film from the surface of the paint. The original colours intended by the artist are thus restored back. There have been instances where it has been said that the murals have been ruined by chemical treatment. This type of misunderstanding is very natural rather inevitable if the processes of the physical changes going on in the varnish and the effect of its removal are not understood. A painting which is being looked at, copied and photographed for centuries in a discoloured state, when attains its original colours on cleaning appears completely changed to a person, who is conditioned to the earlier state of that painting. He finds it difficult to adjust the two mental images of the picture which are so divergent. The fact can be ascertained correctly only if a complete record of the different stages of removal of varnish are available to the visitor.

3. **Moisture:** It is very seldom realised that much, or probably most, of the deterioration inside buildings is caused by dampness; flaking of paint, stains on the walls, bulging of plaster are often the result of excessive moisture present in the walls. The defects that are, most commonly, observed due to high moisture in the different components of wall paintings can be enumerated as under :

1 In Wall-Supports :

- (a) Formation and appearance of soluble salts.
- (b) Softening and crumbling.

2. In plaster :

CALCIUM SULPHATE PLASTERS

- (A) (a) Softening of retarded hemihydrates because of partial solution.
- (b) Expansion and buckling of anhydrous plasters due to further hydration.

(B) LIME, LIME/SAND PLASTERS

- (a) Softening, crumbling and blistering produced by partial solution and efflorescence.
- (b) Cracking by moisture-expansion and drying-shrinkage.

(C) CLAY PLASTERS

- (a) Crumbling and disintegration often a result of crystallisation of salts and loss of organic binding matter.

3. In Paint and Paint-surfaces :

- (a) Bleaching or change of colour.
- (b) Blistering and flaking.
- (c) Disintegration of binding medium.
- (d) Chemical alteration of pigments.
- (e) Appearance of white crystal formation at the surface.
- (f) Coloured patches - effect of fungal growth.

CAUSES OF DAMPNES

In most instances no treatment of the defects will be successful until the source of the moisture has been traced. It is, therefore, necessary for a correct diagnosis to examine the building thoroughly and to try to find out the source of moisture causing the deterioration.

EXCESSIVE MOISTURE OR DAMPNES

Moisture is present in all porous material in a normal 'dry' building. The amount varies from material to material depending upon the nature of the material and the humidity of the surrounding atmosphere. This amount of moisture present in the building is not harmful to the materials. It is only when the moisture is present in excess to the normal amounts that it is harmful and causes deterioration. Dampness of the wall can often be detected by touch or by appearance. Damp patches of wall feel cool and deeper in shade. A reliable method of measuring wall-dampness is with the help of a moisture meter. The working of the meter depends upon the change in the electric conductivity through the material which rises with rising humidity. The measurement gives an indication of only the surface dampness which is considerably lower than the humidity inside the walls.

Certain factors which ought to be borne into mind while examining dampness and its causes are.

- (a) The extent of the dampness e.g. is it in patches or is it wide spread.
- (b) Nearness to opening like windows, ventilators etc.
- (c) The time or season of observation. The extent of dampness during rains and during summer will be different.

SOURCES OF DAMPNES :

The main sources of dampness in a building are.

1. Water introduced during construction.
2. Condensation from air.

3. External sources like leakage from drains, windows, cracks in the walls, or ceiling.
4. Rain by penetration.
5. From ground by capillary action.

Now we shall consider these one by one.

(i) WATER INTRODUCED DURING CONSTRUCTION.

During construction of a building huge quantity of water is to be used. It takes the building several summers before the walls, floor etc. are completely dry. When the moisture is driven out, the soluble salts get deposited at the surface and thus within first few years of the construction of the building there are more chances of appearance of efflorescence on the surface. For this reason the mural painters do not lay their murals immediately after construction of the building. Some deterioration of the painting in the first year of construction of building must be expected.

(ii) CONDENSATION FROM AIR.

It has been mentioned earlier that the building material retains water even after it has dited for a few years. The water is held in the minute pores and capillaries of bricks, plaster, stone etc. If the humidity of the surrounding atmosphere remains excessively high for a long period there is a likelihood that the walls absorb moisture from air and become damp. The capacity for this condensation depends upon the porosity and the composition of the material. Dampness due to condensation usually affects the whole area of the walls, ceiling or floor.

Condensation of moisture on the walls is added by contamination of the plaster with deliquescent salts. These salts have a property to extract moisture from the air at a humidity below that required for condensation on uncontaminated surfaces. In effect this means that if salts are present, the plaster may become damp even if the humidity present in the atmosphere is not very high.

The most commonly encountered deliquescent salts in buildings are chlorides, such as sodium chloride and magnesium chloride. A common source of chlorides is sea-sand used for preparing the mortar. Nitrates also occur frequently, usually derived from soil by rising ground moisture. Chlorides are often associated with nitrates fixed by this process. Certain other salts are produced by the action of ammonia and sulphuric oxides derived from the polluting gases present in the atmosphere.

Although the salts may have been introduced into a building in a widely dispersed state during construction, for instance as sea salt in the mortar,

they do not remain uniformly distributed for very long. As the moisture introduced during construction dries out, the salts become concentrated in patches. In this way a trace of sea salt in a building sand can lead to patches of plaster having 1 per cent or more of chloride present in the surface layers.

(iii) EXTERNAL SOURCES LIKE LEAKAGE OF DRAINAGE ETC.

There is not much difficulty in recognising dampness caused by leaks from drains, cracks in the wall etc. Generally a big patch is visible on the wall-surface. Water may be present in the form of small droplets at the surface of the painting.

(iv) RAIN BY PENETRATION.

There is a limit to the amount of rain that a solid wall can, keep out. A wall may remain dry on the inside in normal dry season but may fail if the wet-weather happens to be abnormally long. In tropical climates even thick walls are likely to be affected by penetration. The capillaries between the mortar and the blocks (or the bricks) are the weakest points for penetration of rain.

(v) MOISTURE SUCKED FROM GROUND :

Moisture present in the ground rises up and is absorbed by the walls by capillary action. The intake of water is facilitated by a high water-table. The bad effects of rising ground-water on painted walls are numerous and deserve a detailed study. Ground happens to be a constant source for abundant supply not only of water but water soluble salts also causing efflorescence (already discussed). The line of efflorescence on the walls may very often rise to several feet high. Such affected walls become patchy and darkened. Moulds generally grow near the floors. It is again near the floors, owing to the action of rising capillary water, that the painting surface is most disturbed. In the basements—constructions below the general level of ground—during wet season, water may start oozing from the wall surface.

Buildings near the river-bank, or sea-shore are all the more affected by the ground-water.

The only remedy available to save walls from rising damp is to insert a damp-proof course. The operation is very costly and can be given to only very important buildings. One of the methods of providing a damp proof course is sawing a slot at the bottom of the wall and inserting a membrane of damp-proof material. Obviously the damp-proofing to be successful should be provided throughout, on all internal and external walls.

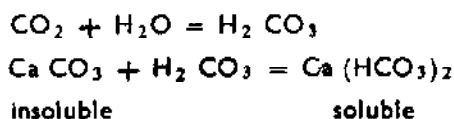
Even after a damp-course has been inserted, there may still be trouble from dampness caused by deliquescent salts that have already been carried up high the wall. No doubt this will be less serious than a continuous flow of rising moisture but it is difficult to eradicate and will affect the painted wall adversely. If the salts present are in high proportions the only remedy may be to detach the painting from the wall and transfer on another support.

EFFECT OF MOISTURE ON WALL-PAINTINGS :

It may be no exaggeration to say that moisture, directly or indirectly, is involved and is responsible for most of the ills of the wall-paintings.

We have already discussed the role of water in the appearance of efflorescence on the surface of paintings. The movements of salts from ground to the wall or from one centre of concentration in the wall to the other areas is caused through the medium of moisture present in the wall—whatever be the source. The salts in their own turn affect the wall-support, plaster and paint, cause them to deteriorate and to wither away.

Moisture also affects the mass of the wall-units, mortar and the plaster by hydrolysing lime. Carbon-di-oxide of the air in combination with moisture is converted to carbonic acid which the insoluble calcium carbonate converts into soluble calcium bi-carbonate.



Thus formed soluble calcium bi-carbonate moves along with the moisture. The affected parts are adversely affected in as much as the lime-mortar or plaster loses its binding strength and crumbles. Certain stones containing lime for binding the matrix are also affected the same way.

The effect of presence of salts and their movement in the different types of plasters is to be discussed under efflorescence. The main reason for the disintegration of gypsum plaster is moisture and the extent of its effect upon the crystallization state of the material. Clay plasters are affected too by the presence of moisture. The binding material of the plaster deteriorates by the action of bacteria growths; movement of salts causes the clay plaster to be disrupted. Too much moisture may even cause the clay wall to fall by its own weight.

The organic binding medium like glue etc. deteriorates rapidly in presence of moisture. The adhesion between the paint and the plaster is lost.

The paint starts flaking. Successive drying and wetting may also result in the same state. If the paint happens to be laid thick, alternate wetting and drying will develop cracks and finally a powdery state of the paint will result.

The effect of micro-organisms has been discussed elsewhere. The growth of micro-organism is possible with the presence of moisture. It is accentuated by excess dampness. It will thus be seen that the moisture is involved in one way or the other in most of the defects of the wall paintings. The first step to be taken after examination of wall-paintings is stopping the source of dampness. No remedial measure will be successful if the moisture intake cannot be stopped. The same defects are likely to occur again and again and the only way left will then be to remove the paintings from the wall.

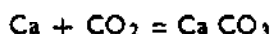
4. **Efflorescence** : On many wall-surfaces a white incrustation appears which is at times hard and at times just powdery and flourlike or fluffy. Crystals of salts sticking to the moist-walls of the old-buildings can often be seen which come off easily by brushing. This incrustation may be composed of :

1. Calcium Carbonate.
2. Potassium Nitrate.
3. Calcium Nitrate.
4. Calcium Sulphate.

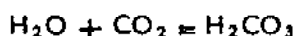
or a mixture of these and some other salts.

FORMATION OF CALCIUM CARBONATE.

Lime when applied as plaster absorbs carbon-di-oxide from atmosphere while setting to hardness and is converted into calcium carbonate.



Water present in the atmosphere and in the plaster also absorbs carbon-di-oxide and is formed into a weak acide, carbonic acid.



Insoluble calcium carbonate of the plaster is affected by the carbonic acid to be formed into soluble calcium-bi-carbonate.



This soluble calcium bi-carbonate moves to the painting surface along-with water which always has a tendency to escape through the surface. At

the surface when the water evaporates, carbon-di-oxide also escapes and again insoluble calcium carbonate is formed.



The calcium carbonate thus formed is deposited at the surface and is seen as efflorescence. In the course of time the layer of the deposited lime thickens and hardens forming a tenacious incrustation.

This action of carbonic acid on the lime plaster weakens the plaster to a great extent. The mass of the plaster is attacked and disintegrated. The paint surface is spoilt. It is a continuous process and depends for its action upon presence of water.

FORMATION OF POTASSIUM NITRATE

In the earth so many soluble salts are present which are transported from one place to the other with the movement of water. Rising water from the ground invariably contains salts which move along the wall and gets deposited on the wall-surface as the water evaporates away. The chief of these salts is potassium nitrate which often is mixed with other salts like chlorides and sulphates, the exact composition of the efflorescence depending upon the salts present in the ground. The efflorescence generally appears on the wall-surface in the dry-period after a wet season.

The saltpetre thus deposited on the wall surface has a very damaging effect upon the painting. The paint flakes off. Surface is damaged. It becomes rough and crumbles to powder.

The presence of such deliquescent salts in the plaster increases the intake of moisture by the plaster from the air or the ground. The plaster at the slightest provocation becomes easily damp.

FORMATION OF CALCIUM NITRATE :

The nitrate anions of the nitrate salts appearing as efflorescence combine with the calcium cations of the lime to form calcium nitrate. The plaster is further weakened. All the calcium carbonate that is thus attacked becomes a potentially weak point in the plaster.

TREATMENT OF SALT AFFECTED PAINTED WALLS

First step is to trace the source of moisture. Until the source of moisture is found and sealed, no treatment is likely to be successful.

Surface efflorescence can be removed mechanically with a dry brush. In the later stages wet sponge can also be used.

Obviously for areas where the paint has already been lost no treatment is available by which the colour can be restored. The area can only be cleaned and whatever paint remains can be preserved.

Even if the main source of dampness has been stopped, the salts that have already penetrated into the wall may prove to be harmful and it is always a problem to remove such salts. Had the wall been unpainted and the plaster strong enough the wet paper pulp treatment can be applied. It consists of in the application of wetted paper pulp on the wall. Paper pulp when dry is scraped off and if the salts persist treatment is repeated. On painted walls naturally, the treatment can be given only to those parts where the paint has already deteriorated by efflorescence or otherwise.

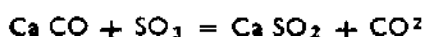
The Central Asian wall panels removed by Sir Aurel Stein from the caves of Thousand Buddhas and brought to New Delhi were found to be saturated with salts. The support of the painting was mud mixed with organic-matter like husk etc. The salts were hygroscopic and were proving to be dangerous to the mud support. It was not possible to apply wet paper pulp either on the front or the back because the support was easily damageable by water. At the same time it was absolutely necessary to remove the salts from the panels. A special technique was evolved to achieve this aim.

An air-tight box was constructed with one side inclined at an angle of about 60° to the base. The inclined side had a window equal in size to the wall-section. The section would be positioned tight against this with the help of cross batons at the back. The opposite side of the box glass window to enable looking inside the box and keeping a watch on the wall section.

The wall-section was placed at the window with the painting side towards the inside of the box and the back of the plaster towards the outer atmosphere. Inside the box an atmosphere of high humidity is created by keeping open jars full of water. The water-vapour seeks to move from a space of high humidity towards an open with less humidity. The tendency, therefore, in the set up is for the moisture to move through the painting section and to escape from the back. The salts present in the plaster also move towards the back of the section which can be scraped off from time to time. Care has to be taken that there is no outbreak of fungal growth on the paint surface due to high humidity inside. After the salts have been removed, the section is strengthened and provided a fresh support.

5. Atmospheric Pollution : The two main polluting agents of atmosphere, namely carbon-di-oxide and sulphurous gases in presence of moisture have a deteriorating effect upon walls and the wall paintings. The effect of carbon-di-oxide upon the plaster has been discussed under the section on efflorescence. It is one of the major causes of formation of white efflorescent surface on the painting.

Sulphur dioxide and small amounts of sulphur trioxide are the common polluting gases in the atmosphere of an industrial area. Sulphur dioxide, present in the waste gases of chimneys, is oxidised, though very slowly, to sulphur-trioxide. Sulphur tri-oxide attacks calcium carbonate and disintegrates. Presence of moisture in the lime plaster accelerates the reaction and gypsum is formed.



This formation of gypsum gives rise to two types of problems.

1. The plaster deteriorates, crumbles and is reduced to powder.
2. The lime medium in a fresco binding the pigment to the plaster loses its strength and the pigments flake or scale.

Similarly sulphur dioxide absorbed by moisture forms sulphurous acid which decomposes calcium carbonate.

TREATMENT.

The first consideration again will be to stop all leakages of water. After that has been achieved, the procedures that may halt the chemical decay of lime plaster due to sulphur gases are of three types (1) isolation of the paintings from such sulphur oxides (2) to control the atmosphere of the room and free it of the contamination, (3) to transfer the paintings on to a new support that is inert to these gases, discarding the lime plaster.

6. Action of Biological Growth: The biological growths on wall-paintings can have a tremendous, though often slow, disintegrating action leading to total destruction of paint surface. The white, fluffy deposits interspersed with black dots, generally accompanied by a musty odour covering the wall during the dry days following the wet season are different types of fungal or mold growths. The white veil of mold growth covers the painting, making impossible to be seen. Most paints have sufficient food to nourish these molds and once the proper moisture and temperature is available, the growth starts. The molds are liable to damage the paint as well as the plas-

ter. They have more chances to be active on the wall paintings than on other types of paintings for one simple reason that moisture, the first essential condition for biological growths, is more likely to be available on walls.

The molds attack the organic substances used to bind the paint in tempera paintings and paintings *al secco*. The binding medium having been utilised by the growing micro-organism for food, the pigment no more adheres to the wall, is pulverised and falls.

If the action of the mold is prolonged, black discoloured spots are often left on the paint - surface, disfiguring the design. Prolonged action of bacterial growths may also show pits and craters as if bitten by acids. Extreme instances of mold growth show complete loss of large areas of paint, probably from flaking as well as from actual consumption.

In the absence of complete control of atmospheric conditions mold growth can be restrained by constant vigilance, regular inspection and the use of fungicides. The source of moisture must be traced and closed. There should be regular inspection of the paint surface for any likely presence of biological growths and any indication of outbreak should be immediately treated. Application of fungicidal solutions is effective in most cases, though the effect may be only temporary and require a repetition.

In many instances, specially where straw, husk etc. has been used with the plaster, insects are found to weaken the paintings. Insects of different types tend to eat away the organic material and thus reduce the compactness of the plaster. Application of suitable insecticides in solution form can greatly reduce the danger from insects.

TRANSFER OF MURALS

Sometimes it is found necessary to transport the wall paintings from the original site to a new one. This can be necessitated if it is felt that the building is collapsing and cannot be saved. Very often when the paintings are situated at a remote place, it may be desired to show them at an easily accessible cultural centre. It may not be possible to put a stop to the action of natural agencies like moisture etc. at the original site and the only recourse left open may be to detach the paintings from the wall and to show them removed away from it. The building, having the paintings, sometimes is to be used for a purpose that it may not be possible to safeguard the paintings.

PROCESS OF TRANSFER

For the removal of paintings three methods, which are used according to the needs in each case, are used. In one method the whole wall along with

the bricks, plaster and paint is removed. Obviously the method, because of the weight of the wall is tedious and very laborious. Nowadays it is seldom used.

In the other method the split is made between the wall and the plaster. The plaster is detached from the wall in several sections. The painting comes off along with the plaster. The size of each section depends upon the condition and strength of the individual walls. All the loose plaster and mud is scraped off the back of the section retaining only about $\frac{1}{4}$ " thick solid plaster. Pouring fresh plaster at the back of the section, a plaque is formed which can be handled now with ease. These sections can then be joined edge to edge according to the scheme these were at the time of cutting. To finish, the joined pieces can be given a semblance to the original wall.

This type of mounting is often heavy and cumbersome. Assemblage, therefore is a tedious task. Sometimes the transferred plaster is too fragile and weak to be retained. It is then better to discard the plaster and preserve only the painting layer. There are certain other circumstances when it becomes necessary to discard the plaster e. g. to save from air-pollution or concentration of salts in the plaster. In a painting the design and its texture are the only important considerations.

A facing of thin tissue paper and musling followed by a layer of canvas is attached to the wall with a suitable adhesive. The section is then placed back up. The plaster is scraped off the section till the paint layer is reached. The final surface is smoothed, and cleaned. It is then attached with its back on a fresh support of canvas or fibre-board. The adhesive used is generally a casein-lime glue, or some synthetic resin. After setting and drying, the front facing is removed exposing again to view the painting design. The paint surface is then cleaned of all excess adhesive.

For the removal of murals a third method is to be used when the plaster is very securely attached to the wall or rock. Many a time it is not possible to reach the back of the plaster in order to detach it from the wall. In such cases the cleavage is effected between the paint layer and the plaster. After applying protective layer of a synthetic resin on the painting successive coatings of muslin and canvases are attached to the surface with a strong adhesive. After the adhesive has dried and completely set, the facing is carefully pulled off. The attempt is to pull off the paint-layer along with the facing. This is a delicate operation and requires some skill and manipulation. The facing along with the paint is then placed on a table. All extraneous, loose plaster coming off with the paint and present at its back now is cleaned. The process of attaching a new support is the same as described earlier. When

the paint is securely attached to its new support the facing is removed using hot water to dissolve the glue if that was used to stick the facing. It is possible to use a synthetic adhesive to attach the facing if the paint is likely to be damaged by the use of too much water. The adhesive then to transfer the paint to the new support should be such as not to be affected by the solvents of the former adhesive.

The method has been successfully applied to transfer the Italian murals and recently in our country to transfer the murals from an early nineteenth century palace at Chamba and from another palace at Kulu.

CONCLUSION :

Described above is only a short outline of the various aspects involved in the conservation of wall paintings. The problems are extremely tedious, needing a team work and concentrated efforts. Each work of art, be it a mural, a sculpture or a bronze, has its own peculiar characteristics and ailments, which must be studied to arrive at a solution.

Marble : Deterioration and preservation. *A Preliminary Report*

[ABSTRACT : Marble as a material, vulnerable to chemical and physical factors. The paucity of literature on the physico-chemical aspects of marble deterioration. Types of deterioration noted on marbles in our Museum collection. Resume of treatment given and the problems to be tackled.]

INTRODUCTION

Siliceous materials form one of the three main groups into which Plenderleith divides, broadly, all materials used in antiquities and objects of art.⁵ These are also the stables among the materials (with the sole exception of gold) in all conditions, on account of their inertness to chemical action; this inertness itself proceeds from the complex nature of molecular composition, which makes them proof against most of the common acids and alkalies and reactive elements. In fact, most stone objects fail by physical breaking-up rather than by chemical decomposition, as is testified to by the innumerable stone monuments in India and elsewhere which have stood up gamely to the chemical battering of the elements for centuries, but have not withstood, so well the physical damage inflicted by the sheer physical force of the elements.

THE UNIQUE NATURE OF MARBLE.

Marble is, however, an exception among the stones, most widely used for sculpture and architecture. It is more susceptible to damage chemically when compared to other stones. This is so because marble is mainly a carbonate of calcium; and carbonic acid being a weak acid, carbonates are relatively less stable and so liable to be attacked by stronger acids and decomposed. Moreover, there is no formation of a complex compound, as in other stones like granite, to confer stability against chemical attack. Another important factor for considering marble an easily susceptible material is that its beauty is contingent upon the polish and the purity of its surface; and yet this itself is most liable to damage. Its surface is easily spoiled by the action of the reac

tive gases in the atmosphere and the disfiguring effect of things, such as dust, soot etc., which are to be found everywhere.

LITERATURE ABOUT MARBLE CONSERVATION.

Marble has always been a much-prized material for sculpture and building. Yet, detailed literature on the conservation of marble appears to be comparatively little. In the most exhaustive bibliography on the preservation of natural stone, published recently as an appendix to *Art & Archaeology Technical Abstracts Vol. 6 No. 1*, references, devoted solely to marble conservation, are but ten in number.⁷ Even among them, more is said about specific methods of preservation of marble than about the scientific why and wherefore of marble deterioration and preservation. Plenderleith gives in his book a brief and valuable summary of the important facts about the deterioration and conservation of marbles but is, by no means, exhaustive in dealing with all the aspects of the problem.⁵ R. J. Schaffer of the Building Research Station, London has given a detailed account of the weathering, preservation and restoration of stone buildings but the references to marble are still incidental and are to be derived by inference from the facts stated about limestones in general. Moreover, this is an account based on experiments in a temperate climate. Dr. B. B. Lal of the Archaeological Survey of India has spoken about the weathering and preservation of stone monuments with particular reference to Indian conditions and has given details of the problems of marble in the Taj Mahal.⁸ Only the paper of Kenneth Hempel deals, specifically and at some length, with marble,² and that of T. Stambolov is a good account of a specific problem in marble conservation - that of the removal of stains.¹ The literature on the physico-chemical aspects of marble deterioration is comparatively meagre and less is precisely said about how surface deterioration starts and proceeds or a stain becomes indelible than how it may be removed and the marble preserved.

This became evident when the marbles in the Salar Jung Museum were taken up for conservation. There are 331 marbles in the collection, and they vary in size from 6 inches to 5 feet. They were kept formerly either indoors in the Alna Khana or in the Main Stores or outdoors at various points in the old building. Similarly in the new building also, some are kept in the Marble Gallery or in the Stores or in different open spaces inside the building.

When, preliminary to treatment, they were all examined thoroughly for knowing their condition, it was found that they showed different types of damage, not necessarily referred to in available literature. When they were subjected to treatment as per existing well-known methods, it was also found that not all of them responded equally to the treatment. This difficulty neces-

sitated a further search for literature on marble conservation and eventually the recording of the facts gleaned from the examination of the marbles. This report is a result of their thorough preliminary examination and would be supplemented by further reports, as and when specific problems are investigated in detail and satisfactory solutions are found for them.

THE NATURE OF MARBLE.

Marble is recrystallized limestone, which is, itself, composed mainly of the mineral calcite. The chemical composition of calcite is CaCO_3 . Marbles are normally white but are often tinted by iron oxide, carbon or serpentine to attractive shades of yellow, brown, green or black. Some of its physical properties, as compared to basalt and granite, are as follows: ⁹

Sp.	Resistance to abrasion in kg/sqm.	Coefficient of Thermal expansion.	Specific heat in 1000 cl/gm.	
Marble	26 to 28	300 to 2600	54 to 70	210
Basalt	28 to 32	1000 to 5000	54	150 to 210
Granite	25 to 28	370 to 3800	75	132 to 192

It is evident that it is lighter and softer than basalt and that it gets heated more slowly and expands less with temperature than granite.

DETERIORATION OF MARBLE.

(i) The most common form of deterioration noted is a roughening of the surface accompanied in some cases by the formation of mat opaque patches. This roughening, besides removing the polish of the marble surface, results also in rendering it more porous and opaque in appearance. In a few cases, as in the figures with accession numbers $\frac{XLV}{I \frac{V}{4}}$ and $\frac{WB}{8}$, the calcite granules are easily discernible. In cases, where the roughening has proceeded far, there is loss of detail in the sculpture of the marble. Fine lines get blotted out and apparently there is loss of surface layers (see figure No. 1). Further surface deterioration has resulted in the formation of jagged edges, which are brittle to the very touch, marbles nos. XLV, 179, 180).

This surface damage is more pronounced in the marbles, displayed in the open, but it is to be recorded that the marbles with jagged edges and powdery surface mentioned above were kept indoors for a long time but the surface damage did not cease.

This type of damage has been referred to in literature. Hempel attributes the opaqueness of the surface after deterioration to the formation of a thin layer of calcium sulphate, which is shed, in course of time, as a result of "tensions, set up by different coefficients of expansion. This action can occur at varying thicknesses, 0.25 mm to 5 mm".² This explains also the loss of surface details. As for the production of the jagged edges, Hempel says "The trouble seems to occur in portions of the sculpture where the carving is thin, thus presenting a large ratio of surface/volume. Fingers, noses, ends of robes etc. are often the places where the disintegration starts. Cross-sections of degeneration reveal a general expansion of the material, where the crystals have lost adhesion".²

(2) Statue No. WS. 13 reveals a type of deterioration, not mentioned in literature. This is the formation of a number of spots which, in course of time, become tiny pits. This pitting of the surface has occurred all over this statue and is also to be seen in a few other statues. (Fig. 2). Some of the spots are quite deep and black and are spreading. The mechanism of this seems to have common features with that of marcasite in limestone, noticed by the present writer in an Amaravati limestone panel in the Madras Museum and mentioned in his report on "The Study of Stone" submitted to the ICOM Laboratories Committee¹⁰. The iron sulphide in the marcasite decomposes to form sulphuric acid locally, which, in turn, reacts with the calcium carbonate of the stone and decomposes it. This is accompanied by the spreading of a brown discolouration due to the iron. In the present case, the discolouration is black and it is to be seen whether the pitting is due to some lichen growth, which locally forms acidic substances and results in the loss of carbonate at the spots.

(3) A unique type of deterioration is seen in statues XLV 158.C (Fig. 3). Here the marble has developed large polygonal cracks, which appear to grow deeper and deeper and threaten to break the marble into bits, if neglected. (Figs. 4 & 5). Such a damage has been reported by Hempel in outdoor marbles and is attributed by him to repeated expansion and contraction, suffered by marble due to frost and rain⁷. A few features distinguish our marble from the those mentioned by Hempel: (a) It has been kept indoors (b) The cracks follow a regular geometric pattern (c) They have developed only in three similar figures of, probably, the same provenance. This requires further careful investigation.

(4) Another type of surface damage is staining. A white marble is easily stained, and the stain has got the tendency of becoming deep-seated, because it gets into the interstices of the porous surface and it, then, becomes difficult to remove. Moreover, in season after season of weathering, the

calcium sulphate layer which is formed throws a protective cover, as it were, over it and the stain remains impenetrable, as calcium sulphate itself is a difficult material to remove since it is insoluble in solvents. Strong acids cannot be used on marble on account of its chemical susceptibility. So stains on marbles form quite a difficult problem in conservation and their removal entails a good amount of labour and carefulness.

The stains on the marbles in our collection are of three types : (1) One is a general discolouration of the surface. It takes on a light reddish-brown colour and is generally attributed to the accumulation of dust. (2) Another type is a deep reddish brown stain, which is to be seen mostly inside the folds of drapery and in such places as are protected from direct rain-water flow (fig. 6). This is due to mildew growth and if left unremoved, the stain darkens and becomes black. Such stains have been noticed in many marbles, e. g. in statues Nos. WS. 9, WS. 16. (3) This type of stain is due to oily or greasy materials and has been noticed mostly in marbles with high polishes. This generally comes from the act of touching the marble by persons. Such stains have been noted to quote for example on marbles Nos. XLV. 20, XLV 135, of the Museum.

TREATMENT GIVEN

Since various types of deterioration are met with in the marbles in our collection, different types of treatment had to be tried. For general discolouration and the deep reddish brown stains, paper pulp treatment was, at first tried, but it was found to be insufficient. There was better response when a solution of Teepol (27) and ammonia (5%) was tried for removing general discolouration. Oxalic acid (5%) and Chloromine-T (2 to 5%) solutions were tried for the removal of the deep-reddish brown stains but did not prove to be uniformly successful. Alkaline Rochelle salt solution, used generally for bronze cleaning, was diluted and tried also on the deep stains in the marble. The composition of the solution was Sodium Potassium Tartrate 7.5% and Sodium Hydroxide 2.5%. It proved to be more successful and is being regularly used. It was, later, found that T. Strombolov has also suggested the use of Rochelle salt solution for removing stains from calcareous material.¹

It is not out of place to mention here that all the marbles, after cleaning, are thoroughly washed with ordinary water first and then with distilled water. They are allowed to dry, and a protective coating of polyvinyl acetate in toluene is given. General cleaning of all the marbles was done during the period April to June, 1968, and it is now found that those kept in the open have developed the stain due to mildew again. Those kept inside the gallery have fared better. The solution of polyvinyl acetate in 50% methyl alcohol and 50% cellosolve is to be tried soon on them.

For the binding (joining) of two pieces of marbles, it has been found that Araldite is suitable. Statue No. XLV. 139. C. was broken in the middle and has been joined with araldite. After binding, the excess adhesive was scraped off carefully a little to the inside, and the crack, then visible, was filled with plaster of Paris carefully. In the case of the statues with polygonal cracks referred to above, Araldite is carefully introduced into the crack for binding where the crack is wide. A method of consolidation of the marble will be sought for after the physico-chemical nature of the cracking is studied.

This preliminary report will be followed up by further reports about the exact nature of the deterioration of the marble and the most suitable materials available in our country for their conservation and the methods of such conservation.

REFERENCES

1. "Notes on the removal of Iron stains from calcareous Stone" by T. Stambolov (*Studies in Conservation*, 13, (1966), 34-44).
2. "Notes on the Conservation of Sculpture, Stone, Marble and Terra cota" by K. F. B. Hempel (*Studies in Conservation*, 13 (1968) 34-44).
3. "Stone as a building material" by R. T. Schaffer (*Journal of the Royal Society of Arts*, 1955, 103 (4965) 837-67)
4. "Chemistry of Engineering Materials" by R. B. Lesghon (The Green Hill Book company Inc, 1953, PPB 45, Rs. 22).
5. "The Conservation of Antiquities and Works of Art" by H. T. Plenderleith (Oxford University Press 1957 373).
6. "Microscopic Authentication of a Slavonic Heathen Idol in limestone" by Rudolf Kozlomeki (*Studies in Conservation*, Vol. 10, No. 1 Feb, 1965, PP. 27-35).
7. Preservation of Natural Stone—Annotated Bibliography from 1839-1965, AATA Abstracts Supplement to Vol. 6 No. 1.
8. "Weathering and Preservation of Stone monuments" by Dr. B. B. Lal (*Conservation of Cultural Property in India*, Proceedings of the 11 Conservation Seminar, Feb. 1967, National Museum, New Delhi, PP. 1-36).
9. "Less Roches" by Andre Calleux (Presses Universitaires de France, 1962, PP 128).
10. "Study of Stones" report presented by N. Harinarayana to the Museum Laboratories Committee, Sept, 1963. on the Amaravathi Sculptures in the Government Museum, Madras.

A note on non-chemical scientific aids in the examination of paintings.

Technical examination is an absolute necessity before a painting is conserved or restored, for technical examination alone explores the structure, materials and current condition of a painting. Visual observation, accompanied by a hand lens, will reveal the evidences of deterioration, which may be as follows :

(a) Deterioration of Surface Films :- crazing, cracking, embrittlement ,

Discolouration :- Loss of transparencies, yellow-brown colour, stain ;

Bloom :- Loss of transparency, bluish haziness ;

Blanching :- Opaque, chalky appearance ;

Pulverisation :- White, powdery surface, easily brushed off ;

Dullness :- Loss of gloss and reduction of transparency ;

Cleavage :- Separation from paint with lack of transparency ;

Scratch :- Mechanical or physical blemish ,

Varnish can affect paint beneath by contraction in drying, resulting in a pulling action on weak paint.

(b) Deterioration of paint

Wrinkling :- of surface in drying ;

Drying cracks :- traction crackle, caused by shrinkage in drying ;

Sagging :- streamlines especially in heavily applied layers ;

Sinking on :- dullness, loss of the depth and transparency ,

Blanching :- chalky appearance of surface ;

Leachings :- partial loss of medium, resulting in chalking appearance of surface ;

Efflorescence :-	of soluble salts or waxy materials from paint ;
Colour change :-	fading, darkening, yellowing ;
Pentimenti :-	visibility of changes in design by artist ;
Abrasion :-	Loss of painting from surface, due to rubbing or attrition ;
Blisters :-	bubbled appearance, usually caused by excessive heat ;
Scrach, Dent :-	mechanical damage ;
Grime and dirt :-	penetrate paint ;

(c) Deterioration of paint and ground :-

Age cracks:	penetration of paint and ground ;
Defects in place:-	cupping, curling along cracks, dent, bulge ;
Cleavage :-	Flat cleavage, Buckled cleavage, Cupped cleavage, loss of adhesion between layers ;
Flaking, Chipping:-	paint and/or ground loss ;
Staining :-	of ground by infusing liquids ;

(d) Deterioration of support and/or auxiliary support :-

Embrittlement :-	desiccation ;
Distortion of plane :	dent, bulge, draws warp ;
Rupture or Puncture:	tear, split, insect damage ;

Additional information may be discovered by employing certain scientific aids, through which we penetrate beneath the surface and record changes, damages and repairs, not readily visible to the eye. Sometimes scientific aids too do not yield any useful information immediately. At times, information is valuable only for compiling statistical or comparative material. Interpretation of scientific or visual evidence needs be done rather thoughtfully in the light of experience and all other available data, and one must be careful in misinterpreting things.

A technical examination of a painting is necessary with a view to have a record of the extent of damage, loss or attention (b) to elicit information regarding techniques and materials of the artist (c) to determine authenticity, period or authorship.

It is always desirable to resort to non-destructive examination, which is accomplished by means of (i) binocular or Stereoscopic microscope 5-40 power, (ii) Photomicrography and Photomacrography, which reveal details of

brush-work, surface textures, contours, particle size, crackle, relative positions of paint layers, varnish layers and later additions. (iii) Ultra-violet rays- which produce shorter rays with dominant wave-lengths at 366 millimicrons. These cause visual fluorescence in natural resins and certain dyes and pigments. Restorations, then, often show themselves in contrast, usually darker, sometimes lighter. Such a situation depends on medium and pigments, used in restorations as well as their position in the varnish layers. Ultra-violet reveals extent of restoration or later change. (iv) infra-red rays :- These transmit long rays with dominant wave-length about 850 millimicrons. Photographs are made with infra-red filter over lens and infra red films. Rays are made visible to the eye by means of an infra-red viewer. Results depend on selective absorption, transmission and reflection of materials but these show (a) artists changes and (b) damage or repainting and penetrate dark and obscuring varnish and also many pigments specially reds and browns and also reveal preliminary drawing, covered or erased inscriptions. Transmitted infra-red may reveal drawing, damage covered inscriptions on canvas but not panel. (v) X-Rays :- With this scientific aid very short rays from about 10°A to a fraction of an A° emanate X-Rays penetrate the entire structure of a painting. Soft rays - longer wave lengths are generated at lower kilo voltage. Hard rays - shorter wave-lengths are generated at high kilo voltage.

But softer rays are less penetrating than hard ones. But these are useful depending on thickness or density of material to be penetrated. Dense, thick materials register as white or light in radiograph which thin materials or no material is dark or black in radiograph. Radiographs show extent of loss in original structure, changes made by artist and images or designs, which stand covered by over-painting. (vi) Sodium vapour light :- It is a monochromatic light and has 589 millimicrons in the visible spectrum. Sodium also has lines at 818 and 819 millimicrons in the infra-red spectrum. Sodium light penetrates yellowed Varnish, glazes and brownish shadow areas but details, which are not easily visible to the eye, can be clearly rendered with it. (vii) Spectrophotometry :- Reflectance curves serve the purpose of recording colour. This aid proves useful in measuring colour - change in paintings. (When and if the above scientific aids are used in the examination of paintings, it leads one to know the condition of a painting before purchase, in order to prevent acquisition of a faked one and to adjust price paid for an unpreservable or over-restored item. For the documentation on scientific lines the above scientific aids to be employed for the examination of paintings are a 'must' in both national and international interests but it must be borne in mind that final value of the report, based on examination conducted with scientific aids, would ultimately depend upon the judgement and skill of examiners.

Ivory : The Material and its Conservation.

As a material in conservation, ivory stands somewhere between the extreme instability and fragility of organic materials like textiles and wood, and the comparative inertness and solidity of inorganic material and metals. It must be remembered that ivory and, more largely than ivory, bone, have survived from the prehistoric times and have been found at many sites in none too bad a shape for all that long time of neglect and the action of the combined forces of time and micro-organisms. This, at once, brings out a salient fact: that ivory is one of the stable materials, used in art and does not cause that anxiety which other organic materials can and do cause. A little neglect can consume and cause to disappear, without a trace, any organic material; it is not so with ivory and bone.

This is because of the chemical composition of ivory. Ivory is essentially *dentine*. As dentine it is like bone in composition but is without the cells and the channels, which make bone so much a living part of an animal organism and, at the same time, confer a little weakness on it. Dentine is harder than bone, and is solid. It contains 57.60% of Calcium salts, chiefly the phosphate with 43.40% of an organic matrix and 0.24-0.34% of fat. The organic matrix in ivory (and bone) is called *Osselin*. The relative chemical stability of ivory (and for that matter, bone) is attributable to the predominance of the inorganic component. Calcium phosphate is a very stable salt and does not decompose easily.

Ivory is obtained from the dentine of the elephant, the hippopotamus, the walrus, the narwhale and the spermwhale. The *tusks* the upper incisor teeth, of the elephant, the canine teeth of the hippo and the upper canine teeth of the walrus, the front teeth of the narwhale are used as ivory. The ivory from the hippo is harder and whiter than that of the elephant and less prone to turn yellow. The tusks of the African elephant are about 9 to 10 feet long and 160 lbs in weight while those of the Indian elephant are about 8 feet long and weigh 90 lbs. Narwhale ivory contains flaws and cracks. Walrus ivory is in many respects coarser than the material from the hippopotamus.

The specific gravity of Ivory lies between 1.70 to 1.93. Its hardness is about 2 to 3 on the Mohm's scale. The structure is very dense and a thin section viewed under the microscope shows a number of wavy lines. Ivory, when heated, produces fumes which are strongly alkaline in character. A drop of Nitric acid tends to soften the surface of real Ivory. Despite its dense character, Ivory is somewhat porous and is therefore easily stained. The pores appear to be filled with a gelatinous solution which contributes to its peculiar polish.

DAMAGE TO IVORY.

As mentioned earlier, ivory is a relatively stable material. It avoids many of the types of virulent damage to which other materials of organic nature are prone like fungus and insect attack. But by its very nature, it is also subject to some types of damages.

Firstly the beauty of Ivory lies in its clear and polished surface. In spite of its denseness, ivory has pores on its surface. These two combine to make stains a real problem with Ivory. Stains may be caused by contact with certain materials like rust or copper corrosion products, by dust and dirt or by discolouration occurring through slight chemical changes in the material. The last - discolouration - makes Ivory acquire a yellow colour and "this is accepted as a form of natural patination which may help to enhance the appearance" (Plenderleith).

Secondly, another property of ivory which causes damage is its tendency to react to heat and dampness differently in different directions. This results in warping of the piece.

Thirdly many large ivory objects are composite pieces i.e. two or more ivory pieces are joined together by dowelling. In this case, warping of the separate pieces will result in strain at the joints which would then tend to come off.

There are many examples of ivory which have lain long under the earth or otherwise neglected and in which much of the organic component has been decomposed. Such Ivory becomes very fragile and brittle because of the large pores created, and has to be handled very carefully. In fact, the organic component of ivory - Ossein - is the one which requires the most careful watch. It is liable to hydrolyse i.e. decompose by the action of water or solution in water. That is why even during treatment Ivory must be in contact with water or aqueous solutions for the least possible time.

CONSERVATION.

From this it is apparent that ivory has to be treated against all these possible types of damages.

(i) **Removal of dust** : This is done by washing the ivory with soap and water or preferably a detergent like Teepol. This has to be done very carefully and only in the case of ivories in sound condition. Immediately after, the moisture must be removed with a soft cloth. In the case of partially-decayed ivories, the ivory after being washed with detergent is dried by being put through two or three changes of rectified spirits, the excess alcohol being removed with a blotting paper.

(ii) **Removal of salts** : There are sometimes encrustations of salts on ivories especially excavated ones. These salts may be soluble or insoluble. The soluble salts are removed by careful immersion in changes of water with immersion in alcohol in between, to prevent the water from soaking in. In the case of insoluble salt incrustation, there is no alternative but to break up the surface, salt with a 1% solution of Hydrochloric acid applied with a small water colour brush repeatedly. This is done on one square centimetre of surface at a time. Other insoluble salts like calcium sulphate which are resistant to even acids are removed mechanically. This is a very delicate job which can be carried out only on ivories in sound condition.

(iii) **Removal of stains** : Stains in ivory have to be removed as in any other material, through the use of appropriate chemicals generally the solutions favoured for use are hydrogen peroxide (5%) or chloramine - T (5%). All the precautions observed with washing have to be observed here also.

(iv) **Consolidation** : In the case of fragile ivories, the most important step to be taken in consolidation with a suitable material. The purpose of this is to fill in the pores with an inert material which would hold together the whole piece. The materials used are either paraffin wax or Polyvinyl acetate in Toluene (5%). This consolidation has however to be done in vacuum ; otherwise the material would not penetrate into the pores. Polyvinyl Acetate has superseded paraffin wax as it can be used in the cold. After the piece is impregnated with it and removed from the solution, the excess solution is wiped off with cotton soaked in the solvent.

(v) **Repair** : Ivory objects which are broken can be put together with hard paraffin wax or 50% vinyl acetate in Toluene or celluloid cement. Cements such as shellac and glue have to be avoided as they are likely to stain it. In the case of cracks or missing portion, the filler to be used is a mixture of beeswax and carnauba wax which can be later tinted with light

oil paint to match Ivory. For very large objects, Plaster of Paris may be used. The wax restored parts are to be covered with two or three coatings of 25% vinyl Acetate in Toluene to avoid the softer wax portion from being damaged.

(vi) **Protective coatings :** After an Ivory piece is cleaned and restored, it has to be invariably given a protective coating to keep the surface intact and free from the dangers of dust. The protective coating normally used is 5% vinyl acetate in toluene or 1% methyl methacrylate in acetone is used.

(vii) **Precautions in handling ivory :** As easy staining is the immediate problem, it has to be always handled with a clean soft cloth. Greasy and dirty hands can cause staining. Temperature changes constitute the other important factor. Violent changes of temperature are likely to cause warping. Ivories in showcases are safer from this than Ivories in the open on account of the steadier conditions inside. Even then when it is too dry outside i. e. about 40 to 45% R H, precautions have to be taken to increase the humidity to a safer limit i. e. about 55 to 60%.

(viii) **Vegetable ivory :** It is interesting to note that there is a type of material called vegetable ivory. The most important substance which simulated Ivory is the corozo nut of commerce. These nuts are obtained from the Ivory nut palm, the *Phetelephas macron carpa*, which grows in the hot valleys around the Andes in South America. The nuts are the kernel of the fruit. They are very hard when ripe and have a fine-grained interior, white in colour. Its density is between 1.38 and 1.42. When heated, it gives a strong acid reaction. Under the microscope, it shows a striated pattern of oval cake which appear to be connected together by filaments. It stands to reason that being of plant origin, vegetable ivory is basically different in composition from regular ivory.

My sincere thanks are due to our Director, Dr. Satya Prakash Srivastava, for encouraging me to write this article and to the Head of the Chemical Conservation Laboratory, Shri N. Harinarayana, for help in preparing it.

A note on conservation of two western oil paintings in the Salar Jung Museum Collection.

INTRODUCTION :

The technique of oil paintings is not so old in India as it is in the Western countries and therefore we do not have many oil paintings. Even these paintings have suffered a greater damage here than in cold countries due to the vagaries of tropical climate and wrong storage conditions. Oil paintings comprise of a support, a ground, a paint layer and a surface coating. The extremes of temperature and relative humidity especially when the changes are abrupt and contrasting, as is the case here in India, play a great havoc with oil paintings. High humidity gives rise to the growth of micro-organisms ; paintings suffer a great strain physically.

When the painting is fresh its different components can move along with one another due to elasticity in them. Fibres of canvas or wood swell in damp and shrink in dry climate. But when the painting gets old the paint, ground and the surface coating cannot cope with the movements in the support and hence every component behaves in a different way towards environmental changes. This provides a great rupture and consequent damage to the paintings.

The kind of oil used as medium for the paint and ground is important as some oils deteriorate or disintegrate more rapidly than others. The adhesion that the oil gives to the paint and ground to hold them in position may be disturbed. The paint and ground may thus crack, blisters may appear and ultimately the paint may flake and fall off in chips. The canvas deteriorates due to photo-chemical action of light, high humidity, high temperature, atmospheric pollution and growth of living micro-organisms. It gets weakened and disfigured. Wood panels warp, crack and split. The varnish gets hard, darkens, cracks, blooms (chalking effect) and becomes yellow due to chemical and physical changes in them. Sudden contrasting environmental changes also rupture the paintings resulting in physical wear and tear. It is, therefore, very necessary to study the scientific aspect of the whole problem and execute

remedial measures on systematic lines. In most of the advanced countries, therefore the scientists are incharge of the various conservation and restoration departments. It is a sort of team work actually where the scientists and artists put their heads together.

The conservation of oil paintings is a highly specialised job and should not be taken lightly. The ultimate survival of these paintings will depend not only on the proper treatment but to the care also these paintings will get and the environment these will face. Air conditioning is therefore a necessity so that the environmental conditions may be kept controlled.

My services were requisitioned by the authorities of the Salar Jung Museum for a period of one month from the Central Conservation Laboratory, National Museum, New Delhi, for the purpose of conservation of some of these paintings. The Central Conservation Laboratory is an institution which has been created by the Central Government to advise and to help other Indian museums requiring such help. The Salar Jung Museum, Hyderabad has a good number of oil paintings in its collection. Due to the various reasons mentioned above they have suffered. The two paintings described in this note were selected in consultation with Shri O. P. Agrawal, Chemist and Head of the Central Conservation Laboratory, due to their advanced stage of decay and therefore needed most urgent attention.

DESCRIPTION :

1.	Title	-	Boy Reading.
	No.	-	SJM-LXV-136.
	Artist	-	John Alfred Vinter
	School	-	British
	Period	-	Dated 1861 A.D.
	Size	-	68 c m. x 45 c.m.
	Shape	-	Rectangular
	Support	-	Canvas
	Medium	-	Oil
2.	Title	-	Tasting wine.
	No.	-	SJM-LXV-109.
	Artist	-	Brown
	School	-	British
	Period	-	Late 19th century A.D.
	Size	-	68 c m. x 54.5 c.m.
	Shape	-	Rectangular
	Support	-	Canvas
	Medium	-	Oil.

TECHNICAL EXAMINATION :

Prior to any conservation treatment a detailed study and recording of different ailments was made. In the first painting, the canvas had become very weak and fragile, and could not bear even a proper stretching. It had tears especially at the top right hand corner at 11.5 c.m. x 5.5 c.m. of about 6 c.m. in length. (fig. 1)

The canvas had slackened in general. It had a paper backing stuck with some aqueous adhesive to provide strength and to repair the damages. The ground was still strong to carry the paint layer except at the damaged places, though the paint layer had some signs of deterioration e. g. cracking and flaking. The painting had thick coating of a varnish which was showing signs of discolouration and has accumulated dust and dirt.

The second painting was in a very bad state of preservation, even though it was found to have been relined in the past. The original canvas had deteriorated resulting in physical losses, especially in the center and at the bottom. It seems to have been restored in the past at several intervals in an unscientific and haphazard way. Thick paint to hide the damaged portions seems to have been used which was unfortunately carried over the original paint layer also. Some of these portions were patched up with paper only to hide the damage and thus changing the whole conception of the painting. Besides, there were a few recent losses of paint due to flaking where the bare canvas was exposed. The paint layer had cracked, discoloured and was very brittle. The varnish also seems to have contributed for its decay as it had also cracked and discoloured. (fig. 3.).

Conservation :

Conservation includes preservation and restoration. The first painting was given a facing with Japanese tissue paper using flour paste. The painting was removed from its stretcher after the facing had dried and was laid on a smooth table, face down. The paper layer from the back was loosened with hot water and was scraped off carefully. A fresh canvas (cotton) was stretched on another stretcher which was slightly bigger than the original painting stretcher. Linen canvas was not available which is generally used for such purposes. Wax-resin adhesive (3 : 1) was then applied on the back of the painting as well as on the newly stretched canvas. The relining canvas was now brought over the back of the painting and the whole assembly was then smoothed by pressing, using a hot iron at about 70°C in the absence of a proper hot table vacuum press. The painting was kept in this position overnight under pressure using weights. The impregnation was thorough and

the adhesive had travelled through the paint layer at weak points. The facing was now removed and the painting was chemically cleaned to remove the excess adhesive from the surface. The varnish layer was also removed using a mixture of iso-propyl alcohol and rectified spirit (1 : 1). Turpentine was used as a restrainer. The losses were puttied with a putty of refined French chalk and gelatine. The excess filler was removed from the paint layer and was smoothened with a fine surgical knife. The damages were retouched with oil colours using a little turpentine and varnish as retouching medium. The areas damaged were so retouched as to look slightly different from the original paint but the new paint was not carried over the original paint layer. The painting when dry was revarnished with a dilute coating of Camel Picture Varnish. The painting was now transferred to its original stretcher and frame. The painting has thus been strengthened and the result is obvious from fig. 2.

The second painting was also given facing and was kept face down after removing it from its stretcher. Wax-resin adhesive was applied from the back and the painting was pressed with electric iron but with little success and hence it was scrapped off. It seems to have entered in the stretcher of the painting at a few places only but other places the old adhesive was preventing its entry. Anyhow the pressing helped to some extent to fix the cracks in position. The painting was now restretched on its old stretcher. The facing was removed and a weak solution of gelatine was introduced wherever the paint layer had still signs of flaking and were pressed back with a spatula. This was very successful in sealing the loose paint back to its place in the painting.

Chemical cleaning was undertaken to remove the old ugly retouchings, paper patches and old varnish etc. Mixtures of isopropyl alcohol and spirit (1 : 1) and diacetone alcohol and spirit (1 : 1) were used for this purpose. Turpentine was again used as a restrainer. The damaged areas were puttied down and were retouched also in the same manner as described in the earlier case. The hidden details of the painting were thus brought to light including some writings on one of the drums painted in the center. The results were rewarding (fig. 4). All these remedial measures and details of the new material introduced in the paintings were recorded for future guidance of the conservators.

Acknowledgements :

I am greatly indebted to Dr. Satya Prakash, Director, Salar Jung Museum for allowing me to work on these paintings. My sincere thanks are also due

to Shri O. P. Agrawal, Chemist and Head of the Central Conservation Laboratory, National Museum, New Delhi under whose guidance this work was done. I am also thankful to my colleagues in the Chemical Conservation Laboratory, Salar Jung Museum, for their co-operation. My thanks are also due to Shri K. G. Patil, Photographer, Salar Jung Museum for his help in photography.

Activities of the Salar Jung Museum During Dec. '69-to Jan. '71.

ADMINISTRATIVE AND OTHER CHANGES

Consequent upon the retirement of the permanent Director of the Museum late Shri V. D. Krishnaswamy, Shri M. A. Razvi carried on as Director till the next Director was selected for the post. On the 8th December, 1969 in the afternoon Dr. Satyaprakash, former Director of Archaeology and Museums Department, Government of Rajasthan, Jaipur, took over from Shri Razvi and joined as Director of the Museum. Prior to his taking over Shri Mohanlal Nigam, who was working as Officer on Special Duty, a post created in connection with the transference of the museum's contents from the old building to the new building, after having been selected on the post of Keeper, as a result of direct recruitment, joined his new assignment on the 1st July, 1969.

Shri Waheeduddin, Office Superintendent, who was on deputation to the Salar Jung Museum from the Accountant General's office, Andhra Pradesh, after having had an extension of three months in his term beyond March, 5-1970, was reverted back to his parent Department, the Accountant General's office, A. P. In his place Shri H. P. Belsare was sent on deputation from the same department to the Salar Jung Museum to work as an Office Superintendent.

Consequent upon the decision of the Salar Jung Museum Board to reach an out of court settlement with Shri K. G. Patil, who was keen to see his case compounded and also to be in service again in view of his having suffered on account of prolonged litigation going on for the past five years, specially when under the order of the Court, he was getting his salary and other emoluments paid to the Photographer working in place of Shri Patil Shri T. K. P. Nair's services were placed at the disposal of his parent Department and Shri K. G. Patil reinstated in service on his original post.

Museum's Collection—Its documentation, checking and physical verification :—

Museum's original records (High Court Registers), having been in Persian script and in Urdu language, and there being no certificate in the newly prepared records in English to the effect that every entry in the new register was compared with the one of the registers in Urdu and that there was nothing in that register, which had not been made over to the new record, it was decided to see the physical checking of all the exhibits, as per entries in all pertinent registers done, and thereby to see the newly prepared records in English authenticated under the signature of those responsible officers, who had been in the service of the Museum in a responsible capacity for the past seven to eight years. A few threemen committees each with the Keeper or the Deputy Keeper as its head were appointed to examine physically, on a comparative basis, the records and also to see the exhibits verified physically, as per entries in various existing registers and to endorse a certificate to the effect that the new registers were true copies of Urdu registers in translated forms and that there was no discrepancy between the contents of the two. This report is still due. Since the records, both old and new, were prepared as per contents of the Museum in the old building and the exhibits were all transferred to the new building, it was felt that would be in the fitness of efficiency in registration if categorywise registers were prepared and such registers of each category based on subjects like porcelain, ivory, silver, minerals etc., and were to include in one register objects of one category existing in both stores and galleries. New registers bearing on porcelain and miniatures were started for the purpose during the period under review.

Photography documents :—

About 5,979 exhibits were snapped and 3,058 prints were prepared and passed on to different sectional heads for being pasted against each entry in the inventory registers in English.

Security :—

The Keeper of the Museum was made the officer incharge of internal security. He is to be assisted by Gallery Assistants, Graduate Attendants, Gallery Attendants and Attenders. All the attenders are now required to keep day to day count of all loose exhibits in their rooms and also to see that the locks and seals of show-cases are not tampered with. The total number of exhibits of each case were got recorded on one side, of each case and a list showing details of the contents of show cases, was kept inside every case. Literate attendants, Graduate Attendants and Gallery Assistants have been assigned the duty of counting the exhibits physically from time to time from

outside the showcases and to assure themselves every day about the safety of exhibits in respective galleries. There is at present no show case which does not have on one of its sides the total number of exhibits recorded on it. Indian miniatures of the museum were got stamped at the back with the seal containing the monogram of Salar Jung Museum Board.

This step has been taken to eliminate chances of replacement of miniatures by faked ones and also to establish the museum's ownership there of in the event of any mishap.

The Security Officer is in charge of external security. A strong key case was got fixed to the wall near the Security Officer's room. The way to it is through the Security Officer's room. All the keys of the rooms of the Museum are lodged in this case in four shelves each one of which is provided with pegs for the keys to be hanged on them. Each door of the shelf has double locks system and is opened by two persons. There is another big door over four doors of four shelves. It has also a double lock system. One key of the lock remains with the Security Officer and the other with the Keeper and the Deputy Keepers, who close and open the upper most door turn by turn each day. Ten persons, thus, are responsible for seeing the key-case closed and opened in their presence. There is a collapsible gate at the entrance near the Security Officer's room. Collapsible gates have been provided to Jade and Silver rooms.

Letters, covering the initials of Officers in the form of monograms, have been made to form the basis of brass seals, which are put every day after the museum is closed on the pouches which contain in them the lock of each and every room. Seals are also fixed on the openings of the pouches with warm lack dye which cover all the locks of show-cases also.

In view of the fact that the records of the museum are silent with regard to the value of museum objects in terms of money paid for them and the theft of objects from museums has become a common event, it was decided to see evaluated by experts, first at least the most valuable objects like those made of precious and semi-precious stones, silver and gold and also Indian miniatures, European oil paintings, bronzes, stone sculptures etc., A Committee of experts and specialists in various fields have evaluated the objects of these categories and got their estimated present value in terms of money recorded in the inventory registers.

Room boards, descriptive boards and labels :—

All the rooms boards were seen corrected and made free from linguistic blemishes. Prominent objects, thus making them intelligible to the

general public. Western paintings' gallery and the Salar Jung's room exhibits were provided with labels in English. Descriptive Boards in English, Hindi, Urdu and Telugu were provided to this room. The jade room was provided with descriptive boards in English, at the entrance to the left side of it. The purpose of the formation of the room containing jade and other mineral objects has been explained with a view to justify the imposition of a separate entry fee on visitors to this room.

Presentation :—

In view of the fact that separate entry fee is payable by visitors wishing to see the contents of the Jade and other minerals room, reorganisation of this room has been started so as to make the contents of the room intelligible to the visitors.

All incoherent objects hitherto finding a place in it were got removed from this room and attempts are being made to see that everything presented in the showcases has a bearing on the title board assigned to the room and also to the nature of the objects displayed therein. Two functional cases presenting amulets necklaces have been put up with a view to show the use of objects made of semi-precious stones like those of jade and other semi-precious stones by the women of this country. A show case presenting objects of only banded agate has been re-arranged. History, use and provenance of banded agate have been brought out in intelligible terms on a board written in English. Other cases in this room are in the process of being reorganised strictly from educational point of view.

The Indian miniatures room was started to be reorganised with a view to trace the origin and evolution of Indian pictorial art. In view of the fact that Indian miniatures have their origin in illustrated Jaina manuscripts, which were first of all, executed in the west of this country, leaves from such illustrated manuscripts as were executed by artists in Western India have been presented on view in a chronological sequence, Indian miniatures of various sub-schools, Moghul, Rajasthani, Pahari, Deccani etc., have been presented here in a chronological sequence. In order to complete the theme of presenting the paintings in a chronological setting and to complete the evolutionary process adopted in the presentation of Indian pictorial art, paintings executed by the Indian artists of the 20th century have also been presented, so as to complete the evolutionary panorama of Indian pictorial art from the mediaeval times down to the present times.

New Acquisitions :—

During the year under review on the basis of the recommendations of the art purchase committee constituted by the Salar Jung Museum Board,

eight Indian miniatures were acquired by way of gifts and purchases to fill up the gaps in the Indian miniatures collection. All such miniatures were initialled at the back after their purchase by one of the members of the Committee.

Their registration and photographic documentation :—

All the newly acquired art objects were entered in the Acquisition register, paid for, numbered and handed over to the officer incharge of new acquisitions. All the exhibits without any exception, were got photographed also.

Building maintenance :—

Though the building of the museum was constructed only two years back, the building was found to be having numerous cracks in and outside its rooms and galleries. During rains, it was found leaking also at several places. The building was also found devoid of proper security devices, so essential to the safety of the valuable contents in the Museum.

The work of construction of the new building, having been executed by the State Public Works Department, as a deposit work entrusted by the Board to this Department, the Director took steps to see that the building was put to proper repairs and made free from all obvious defects and handicaps. The Secretary, Public Works Department and the Chief Secretary were approached to help the museum authorities in the matter. The Chief Engineer got the building inspected by the Superintending Engineer and the Executive Engineer knew the defects existing. The contractor in charge of construction was also shown the lapses existing in the present structure.

In order to attend to safety measures in the new building, Central Public Works Department was approached. Drawings of grills to be fitted to doors and windows were got prepared and estimates called for. To ensure safety of exhibits lodged in the building, an eight feet high compound wall was proposed to be constructed and the provision of funds for the above two purposes has been sought from the Ministry of Education and Youth Services.

In order to provide Burglar Alarm devices to those rooms, which contain most precious and valuable objects, estimates from M/s. Prakash Security Devices, Allahabad, were called for and sent to the C. P. W. D. Hyderabad for seeing them fitted so that the estimate be approved by the Education Ministry and sanction in lieu thereof accorded by it and the work get executed without much delay.

EDUCATIONAL SERVICES :

Guided Tours :—

Schemes for benefitting the visitors through the interpretation of museum's exhibits were introduced by making a provision for guided tours at six scheduled hours each day. This fact was notified to the visitors in all the four languages, English, Hindi, Urdu and Telugu on the basis of four boards, which were put up at the entrance of the museum. Visitors desirous of availing the services of Guide Lecturers were requested to assemble in the foyer in convenient groups so as to facilitate the task of guide lecturers at the respective appointed hours of the day. This practice has now become a normal feature of educational programmes in the Museum.

V. I. P.s and others requiring services of Guide Lecturers are also accommodated and served by the Museum's Guide Lecturers out of the scheduled hours also.

Issue of interpretative literature from galleries :—

Handouts on the contents of various galleries, highlighting their outstanding features, attempted by Shri B. Kotaiah, Guide Lecturer were also issued from seventeen rooms, in order to facilitate the appreciation of art treasure enshrined in the present building of the museum by visitors on special occasions, when the museum witnessed huge rush of public.

Lectures by Guide Lecturers at the institutions situated in the vicinity of the Museum :—

In order to take the Museum literally to the doors of atleast those institutions, which are situated close to the museum, a guide lecturer Shri B. Kotaiah has been assigned the duty of speaking to the teachers and students of atleast one institution a week after visiting it, thereby creating in them an urge for a visit to the museum and its galleries.

Fortnightly lectures by Guide Lecturers at the Museum :—

A guide Lecturer Shri B. Kotaiah was entrusted with the work of lecturing to the public and the staff on any one aspect of the Museum collection and this had been made the permanent feature of educational programmes in the museum. So far five such lectures could be delivered by him on the following subjects connected with the museum exhibits :

- (i) Salar Jung's contribution to Art ;
- (ii) French furniture in Salar Jung Museum ;

- (iii) English furniture in Salar Jung Museum ;
- (iv) Chinese and Japanese furniture in Salar Jung Museum ;
- (v) French Porcelain in Salar Jung Museum ;

Staff re-orientation seminar on methods and techniques of Museology vis-a-vis Salar Jung Museum :—

A seminar for museum staff on the above topic was conducted within the museum premises for over a month and members of all categories (from the level of Graduate Attendants upwards) participated in it and discussed museum techniques and methods first and then their applications to the Museum's contents.

Seminar on subjects covered by exhibits :

A seminar was initiated on Ivory objects, their origin, history and representation in the Salar Jung Museum. Two days in a week, Saturdays and Tuesdays were set apart for it. After the seminar on Ivory objects was over, a seminar on Textiles was started. Such seminars were designed to be made a regular feature of Museum's academic activities.

Lectures by specialists and scholars at the Museum :

Shri Sivaramamurthy, Nehru Fellowship holder and member of the Salar Jung Museum Board talked to the staff on Museum's role in education. Shri O. P. Agrawala, Chemist, National Museum, New Delhi delivered an illustrated talk on the conservation of murals at Chamba. Shri V. K. Bhatt of the Fine Arts Faculty of M. S. University Baroda spoke on the significance of Indian Art. His lecture was illustrated by lantern slides and was presided over by the Vice-Chancellor of the Osmania University, Dr. R. Satyanarayana.

Special Exhibitions :—

Three special exhibitions – one on Modern Indian Paintings (selected from those preserved in the reserve collection of the Museum), the other on Embroidered Textiles (selected from the reserve collection of the Museum), and the third on the literary and artistic prints of Shri M. F. Husain, Artist, were organised during the year.

A mushaira-cum-entertainment programme was organised by the Museum Staff Recreation Club on the Independence Day. Several reputed poets of the city recited their poems. Some local artists entertained the audience with their music.

An Urdu function was arranged one evening in honour of Shri Krishna Chandra, a noted short story-writer of India. It was presided over by

Dr. Hafeez Qateel. Several renowned Urdu scholars, like Salma Siddiq and Shri Zeenat Sajida, narrated their stories at this function and made this function a success.

Museum Week :

Museum Week was celebrated this year from the 1st to the 12th November, 1970. This year's special attractions of the week were :

(i) Debate competition and essay competition on 'What attracts you most in the Salar Jung Museum' were arranged during the Museum week in all the four languages, Telugu, English, Hindi and Urdu. Two prizes to I and II best debators and essayists in each of the four languages – English, Hindi, Urdu and Telugu were awarded.

(ii) Film documentary shows inside the museum in the auditorium were held daily at 3 p. m. and three documentary and full length film shows to the public, outside the museum premises, were arranged on the lawns after museum hours from 6.30 p.m. onwards.

(iii) A Kavi Sammelan in Hindi was organised on one of the days of the Museum Week. Dr. Ramniranjan Pande, Head of the Hindi Department, Osmania University presided over it. One and a half dozen local Hindi poets recited their poems on this day.

(iv) A Kavi Sammelan in Telugu was organised on the last day of the week. Mr. Justice A. Sambasiva Rao, presided over it. More than one and a half dozen poets of Telugu literature participated in the Kavi Sammelan.

(v) A symposium on Museum vs. Education was organised on one of the days of the Museum Week. Dr. Ramesh Mohan, Director of the Central Institute of English presided. Scholars from various fields participated and discussed the role of Museum in modern educational system.

Students from various schools were given guided tours round the galleries during this week.

Children's week -

(i) Film shows at the museum were arranged for the children.

(ii) Quiz competitions in English, Urdu and Telugu were arranged for the children.

(iii) A hobby competition was arranged and children were encouraged in their hobby collection of stamps, coins etc., The best collections were awarded prizes.

(iv) A sketching competition for children was also arranged and outstanding artistic creations rewarded.

(v) In order to renew the interest of the children in the Children's gallery of the museum the favourite story of Snowwhite and Seven dwarfs was recreated with the help of a big story's Board and proper rearrangement of the figures. Historical personnel in the fields of literature, politics etc., numbering twelve represented by plaster cast busts were got prominently displayed in the Children's section in order to present an added attraction to the children visitors in the museum's galleries.

Administrative measures taken :-

In order to define and demarcate the duties of each and every category of staff so as to avoid wastage of energy and time, resultant from the overlapping of duties of the same nature falling to the lot of officers of different categories, duties of the members of the staff from the highest to the lowest were earmarked so that an officer could know where his duties ended and those of the other officers started. The technical officers were made free from all administrative and routine office duties and asked to confine themselves to the safety, maintenance, presentation and interpretation of exhibits under their charge as per categories of objects or sections allotted to them. It was decided that all the articles of the Museum's store, which were available in the Super Bazar were not to be obtained from the market after inviting tenders. Those things, which were not available in the Super Bazar, would be had in future either from the State managed institutions like the Government Stationery Department or procured ultimately from the open market on the basis of invitation of tenders. The printing work of the museum was decided to be got done at one of the Government Presses, so far as it was practicable.

In order to safeguard against the freezing of revenue as a result of the alleged misuse of admission tickets, the practice of seeing each and every ticket punched at the entrance and collected ultimately at the exit gate was adopted. The tickets for admission to the Jade Room, after having been punched were also made to be collected at the exit gate. This practice is being followed at present. In order to see that this practice works well, physical verification of the number tickets handed over with those issued has been done from time to time and it has revealed that the practice adopted has proved successful.

Rules for compensatory and commuted leave etc., were interpreted and procedures laid down for being followed. Rules for the supply of stores to officers and staff were also formulated and defined.

Disciplinary measures taken :-

Official procedures regarding the ventilation of their grievances by the staff of every category in the museum were laid down and it was enjoined on all that these be followed literally in order to avoid any breach of official conduct on their part.

An 'Action Committee' with the members of the museum staff representing each category was formed in order to see to the eradication of malpractices hitherto adopted by the museum staff to the detriment of the well-being of the institution and also to help the Director in the implementation of all his schemes of public benefit and museum development.

MUSEUM CHEMISTRY.

Preservation and Restoration :-

24 marbles, 17 wooden objects, 21 porcelain objects, 2 stone objects, 11 metal objects and 5 textiles were treated in the Laboratory. The marbles, porcelain, stone and metal objects required cleaning and this was done, and suitable preservative coatings given, wherever necessary. The wooden objects were furniture pieces, which had to be repaired and this was done. The textiles were fragile and were mounted suitably. One oil painting had a tear in the canvas and was restored. 174 Indian miniature paintings were remounted. 24 manuscripts, which were in a badly deteriorated condition, were treated, wherever necessary. Tears in the paper were repaired, deacidification of paper was carried out, guarding and patching was done and the sheets laminated by the solvent method, using cellulose acetate and tissue paper.

A through check-up of the condition of 535 manuscripts in the Library was done and recorded. Cloth bags containing paradichloro-benzene (50 gms.) were prepared and kept in all manuscript and textile almirahs, and were also replaced regularly.

Analysis and Research :

A survey of the adhesives, useful for conservation work and available in India was made, this was supplemented by a bibliographic survey of the literature on adhesives. Combining both, a paper on 'Adhesives in conservation' was prepared and sent to the 'Journal of Indian Museums'.

For the restoration of a painting on glass which had got broken into bits, study was made for finding a suitable adhesive, and polyvinyl acetate was selected as the best possible one. The restoration of the painting was

done, and a paper on the work was prepared by the Assistant Chemist and read at the Conservation Seminar in the National Museum, at New Delhi in October, 1969. Some Marbles in the collection of the Museum have undergone a unique type of deterioration-formation of polygonal cracks. This was studied along with other forms of damage in marble, and a paper 'Marbles Deterioration and Conservation: A preliminary report' was prepared by the Assistant Chemist and submitted to the Director for publication in the museum bulletin to be brought out by our Museum.

Research done, talks delivered and publications attempted by Museum personnel :-

The Director of the Museum, at the special invitation of the Director, Advanced Centre of Historical Research, Aligarh University, attended a seminar on epigraphic research at Aligarh and read two papers on (a) Glimpses of Democratic traditions in Mediaeval Rajasthan, as revealed from contemporary epigraphic records, (b) A little known non-Persian epigraph substantiating Akbar's marriage in Jaisalmer House. Two of his research papers, one on "Terracottas of Rajasthan" and the other on 'Recently discovered Gurjara Pratihara temple of Rajasthan' were contributed to Dr. V. S Agrawala Commemoration volume, to be brought out by Dr. U. P. Shah, as its editor. The Director contributed a research paper on 'A prehistoric settlement in Rajasthan' to the Rajasthan History Congress Session of 1970. An article entitled 'Rauzatul Muhibbin-A master piece of Persian literature and art' was also contributed to the Salar Jung Museum research journal by the Director. Two Radio talks-one on 'Kalibangan' and the other on 'Recent archaeological excavations in Rajasthan' were broadcast from A.I.R. Hyderabad and Jaipur Stations respectively. Besides the above, the following popular papers were also contributed by the officers of the museum to different dailies, journals etc.,

ARTICLES PUBLISHED DURING THE YEAR 1970.

1. Salar Jung Museum-Treasure House of Art.
2. Bidri ware.
3. Dacca Muslin.
4. Krishna theme in Indian Arts.
5. Chinese snuff bottles.
6. Chinese porcelain.
7. Melody in marble-Veiled Rebecca.
8. Indian wood carvings.

9. Indian textiles through the ages.
10. Chinese Jade carvings.
11. Art of Amaravathi.
12. Indian Bronzes.
13. Akbar's religious tolerance.
14. Japanese Prints.
15. Indian Ivory carvings.
16. Lacquer ware-An ancient craft of India.
17. Durga in Art.
18. Ajanta.
19. Leonardo da Vinci
20. Illustrated Manuscripts
21. Siva in Myth and Art.
22. Vishnu in Art.
23. Sculptures of Amaravathi.
24. Indian Mural Art.

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| 1. Andhra Pradesh through the ages
Andhra Pradesh-the cradle land of early
man (Deccan chronicle) | Dr. Satyaprakash,
Director. |
| 2. Historical weapons in the Salar Jung
Museum (accepted for publication in
the U. P. Historical society journal). | Shri M. L. Nigam,
Keeper. |
| 3. Future pattern of museums in India. | -do- |
| 4. Future role of museums in India two
monographs for essay competition
organised by ICOM. | -do- |
| 5. Future role of Museums in India
monograph attempted for essay com-
petition organised by ICOM. | Shri D. N. Varma,
Dy. Keeper. |
| 6. Presentation of an Ayudhapurusha
in Bronze in the Salar Jung Museum
contributed to the Assam Museums
Association Journal: | -do- |

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| 7. Future pattern of Museums in India. | |
| 8. Future role of museums in India two monographs attempted for the essay competition organised by ICOM. | Shri G. G. Krishniah,
Dy. Keeper. |
| 9. Japanese porcelain (The Hindu) | Shri B. Kotalah. |
| 10. Chinese Lacquer-ware (The Hindu) | --do-- |
| 11. European painters 7 articles in the Deccan Chronicle on various painters. | --do-- |
| 12. Around the Salar Jung Gallery. | --do-- |
| 13. Alluring French room : | --do-- |
| 14. A stroll through the European Gallery. | --do-- |
| 15. Articles on various subjects, in to various dailies like the Hindu, | Shri D. Bhaskar Rao. |
| 39. the Times of India etc., | |
| 40. The Science of Archives keeping (Book) Regular monograph series State Archives, Andhra Pradesh | Shri N. Harinarayana
Asst. Chemist. |
| 41. Stains: Some physico chemical Aspects : Conservation of cultural property in India, No. 3, published by IASC, New Delhi. | --do-- |
| 42. Adhesives in Conservation in Journal of Indian Museums (accepted for publication). | --do-- |
| 43. Museums of Andhra Pradesh in studies in Museology, Vol. V-1969. | --do-- |
| 44. Abstract of Conservation papers AATA Abstract, Vol. 8 published by IIC, London. | --do-- |
| 45. Restoration of a globe, in conservation of cultural property in India, No. 3 published by IASC New Delhi. | Smt. Kamala Mahurkar
Jr. Chemical Asst. |
| 46. Future pattern of museums in India a monograph attempted for the essay competition organised by ICOM. | Shri N. Harinarayana |

47. Kalamkari art of Andhra, (accepted by Current Events (monthly) Dehradun for publication. Shri V. B. G. Rao.

48. 'Bidrikala'-Contribution in Telugu. -do-

The Director delivered four talks on the following topics at the Baroda Museum.

- (a) Indian Museums and their problems ;
- (b) Indian Museums and the trained personnel ;
- (c) Security measures and Indian museums ;
- (d) Indian museums Vis-avis the training of Museum personnel.

The Director, at the invitation of the Ministry, addressed the Museum Camp on 'Children's museums in India, and Children's corners in Indian museums—a plea for their re-organisation.

Publications :-

The Director attempted a monograph on the Ancestral History of Salar Jung III (based on source books in Urdu and English). This monograph is proposed to be published duly illustrated by a local private agency. A guide to the museum entitled 'Journeys in Art through the Salar Jung Museum' was prepared by the Director and is being sent to press for being put into print.

A folder highlighting the contents of various galleries of the Museum was also prepared by the Director and the same is being sent to the press. Coloured cards and an album of postcards are also being put into print. A research journal entitled 'Salar Jung Museum Research Journal' was proposed to be started by the Director and the proposal met the approval of the Board. This Journal is now ready for press. The following members of the museum staff and several scholars of the country have contributed articles to it.

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|------------------------|--|
| Shri M. L. Nigam : | On some interesting book covers in the Salar Jung Museum ; |
| Shri D. N. Varma : | On the iconography of a Nepalese temple lamp ; |
| Shri G. G. Krishniah | Sevres Porcelain collection of the Salar Jung Museum ; |
| Shri Basava Rao : | On a rare Wan Li Polychrome. |
| Shri Bhaskar Rao : | On a Bronze Nataraja in the Salar Jung Museum ; |
| Shri K. S. R. Murthy : | On Kalahasti Kalamkari paintings on cloth ; |

- Shri Gangadhar Rao : On a Kimkhab, its history and technique of execution;
- Shri B. Kotalah : On 'meaning and history of Celadon ware and the representation of Celadon ware in the Salar Jung Museum'.

Activities of the Library and the Reading room attached to the Museum :-

During the year 1969-70 over six thousand People visited the Library and the Reading Room, attached to the Museum. Over a thousand books were issued for being used inside the Museum premises.

Over a hundred research scholars from different parts of this country and abroad consulted the manuscripts for their research purposes and about three hundred manuscripts were actually used by them.

Though the museum library and reading room are situated within the museum building and these are not open to public and students outside office hours, these were used, during museum hours, by general public and the students of various Universities including those of outside India.

Number and nature of visitors to the Museum :-

During the year 1969-70, 2,69,284 visitors were catered by the museum staff. These included the Director General of All India Radio, Shri P. Venkatasubbaiah, Chairman, Estimates Committee, Lok Sabha, Director, Kaligin Museum, Moscow, Mr. M. S. Gurupadaswamy, Minister of State, New Delhi, Mr. A. Hitomi Consul General from Japan, H. E. Ambassador of Iran and Jordan, H. E. High Commissioner of Malaysia and others.

During the year 1969-70 Income from various sources e.g., sale of tickets, sale of photographs, picture post cards etc., amounts to Rs. 3,47,408.35.

Awards annexed by Museum staff :-

Shri N. Harinarayana got the 1st prize for the best essay on 'Future pattern of Museums in India. Messrs M. L. Nigam and D. N. Varma were bracketed first for their creditable contributions on the subject 'Future role of Museums in India.' The essays were demanded on the two subjects by the National Committee of ICOM in India from the Officers working in different Museums of this country and all prizes were annexed by the officers of the Salar Jung Museum. The value of each prize was Rs. 200/-.

Gift of Childrenplay equipments by A. P. Welfare Fund :-

The Andhra Pradesh welfare Fund has donated this year a sum of Rupees three thousand for the purchase of child-play equipments for being fixed in the courtyard of the museum building. Arrangements are being made to procure some equipments for affording to all opportunity to the children to have outdoor recreations in the museum premises.

Plan scheme implemented during the year 1970-71 :-

During the year under review, prelliminary steps were taken to see the Western oil paintings restored and it was finally decided that the work of restoration, being of highly technical nature, be got executed through the agency of the Central Conservation Laboratory, National Museum In India. Steps were also taken to see the work of the publication of the monograph of Deccani paintings expedited by seeing the coloured blocks ready for press.

Development of Conservation Laboratory :-

During the year under review, an Ashahi Pentax Spotmatic camera was purchased for the laboratory Rs. 2,304 50 with the funds from the Fourth Five Year Plan grants. The utility of this camera is for photomicrography and for ultra violet and infra-red photography. It has also been used for photographic recording of conservation and treatment of objects.

Conservation of manuscripts :

The following materials and equipments were purchased for use in the conservation of rare and valuable manuscripts :

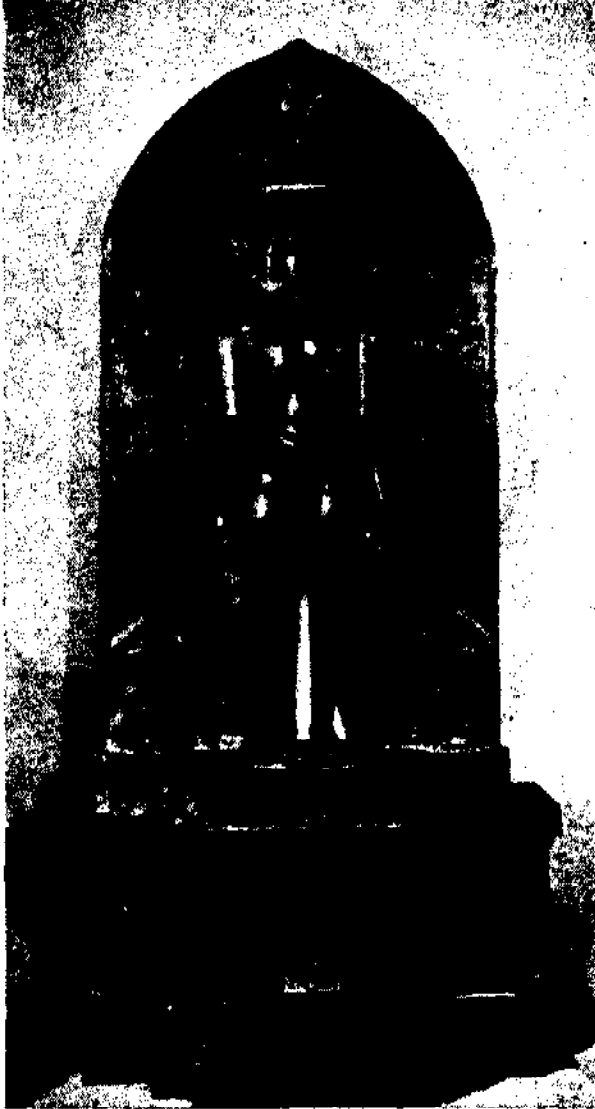
1. Hand presses-two sizes 18" x 24" & 13" x 19" :	Rs.	780.57
2. Board cutter :	...	980.60
3. Enamelled trays-4 Nos. 17" x 22"	...	176.00
4. Electric iron (automatic)	...	60.75
5. Beakers-250 cc-12 No.	...	30.65
6. Acetone	...	858.10
7. Hand made paper	...	2000.00

Besides, colorex glasses were fitted to all the windows of the stack rooms in the Library. This costs Rs. 1226.87. This is for the prevention of harmful effect of sunlight on books and manuscripts.

The total expenditure came to Rs. 6,113.41 under this head.

Future Plan Schemes :

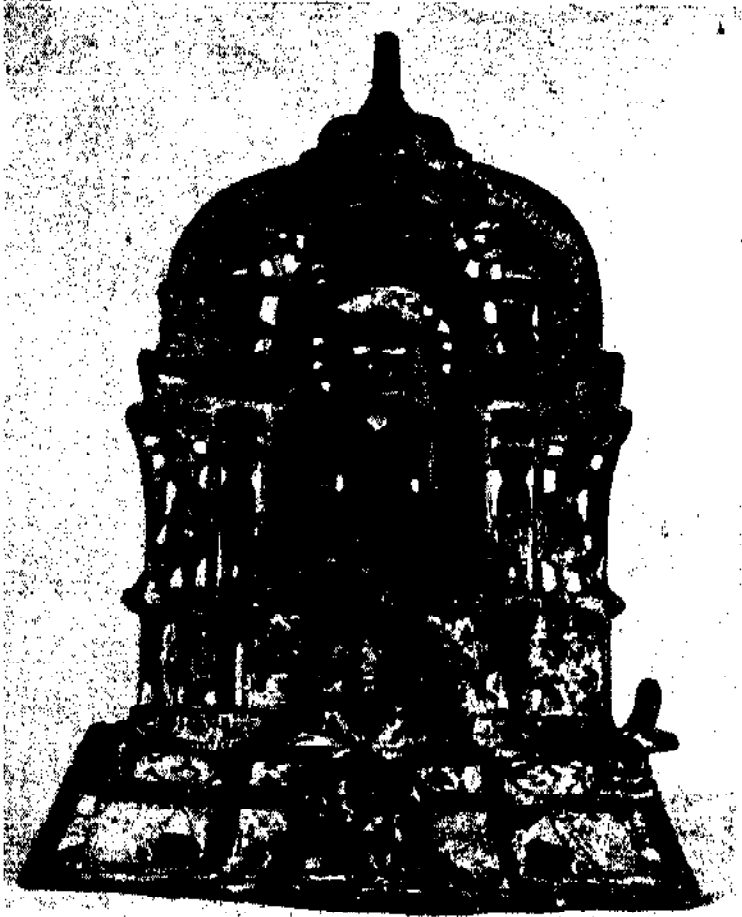
1. Completion of the unconstructed rooms on the 2nd floor of the building and the construction of the second wing of the building.
2. Restoration of all damaged oil paintings ;
3. Reorganisation of atleast one third of the Museum galleries on educational lines ;
4. Publication of popular and research literature bearing on Museum's sections, thus catering to the tastes and needs of various sections of the community.
5. Taking of museum to the areas far from madding crowds ignoble strife, through a mobile museum van.
6. Bringing the educational institutions without any exception situated within five miles radius of the museum to the museum by making available to their students a museum bus for bringing them to the museum and for gallery talks also and for sending them back.
7. Starting of a colour photography laboratory with a view to start a library of transparencies. Transparencies for sale purposes will also be produced ;
8. The building will be made pest proof so as to ensure the materials deterioration from weather and other hazards ;
9. The building and galleries will be made secure against thefts by seeing them provided with grills and antiburglar.
10. The gaps in the collection will be filled up in order to make the collection homogenous and useful for educational purposes ;
11. The manuscripts besides being chemically treated, will be interpreted and their contents made known to scholars for extensive research purposes ;
12. The museum will be made to service the community for whose benefit it stands established through its programmes, embracing different fields- music, dance, drama, Kavisammelans etc.,



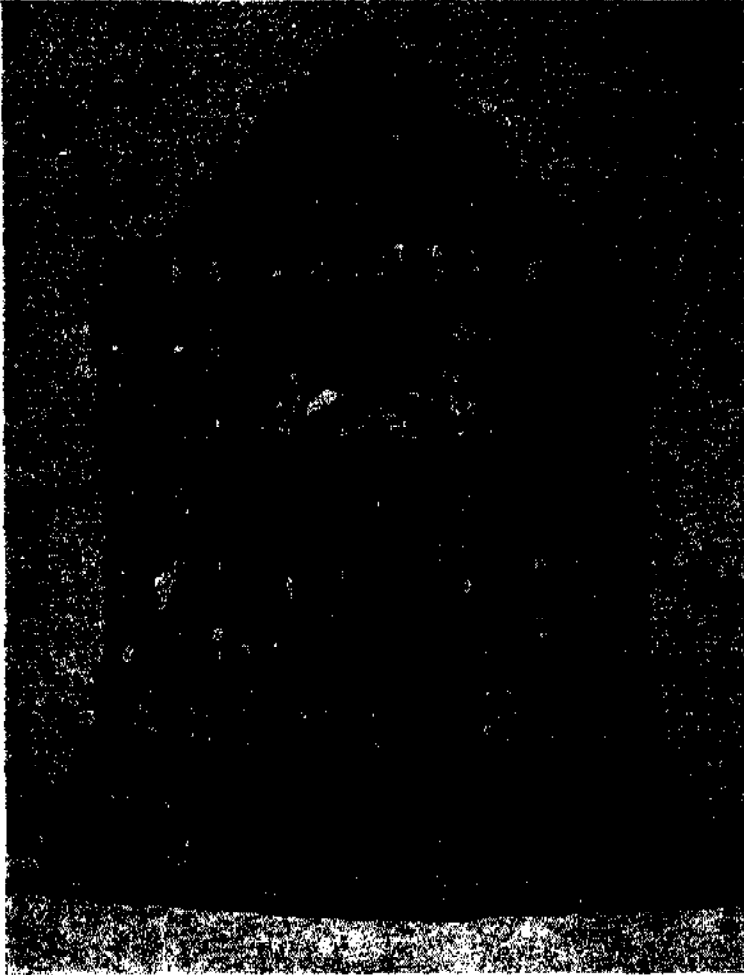
Mahavira, Stone sculpture, Koppal, Chalukyan Period.
12th century A.D.
Plate No. 1



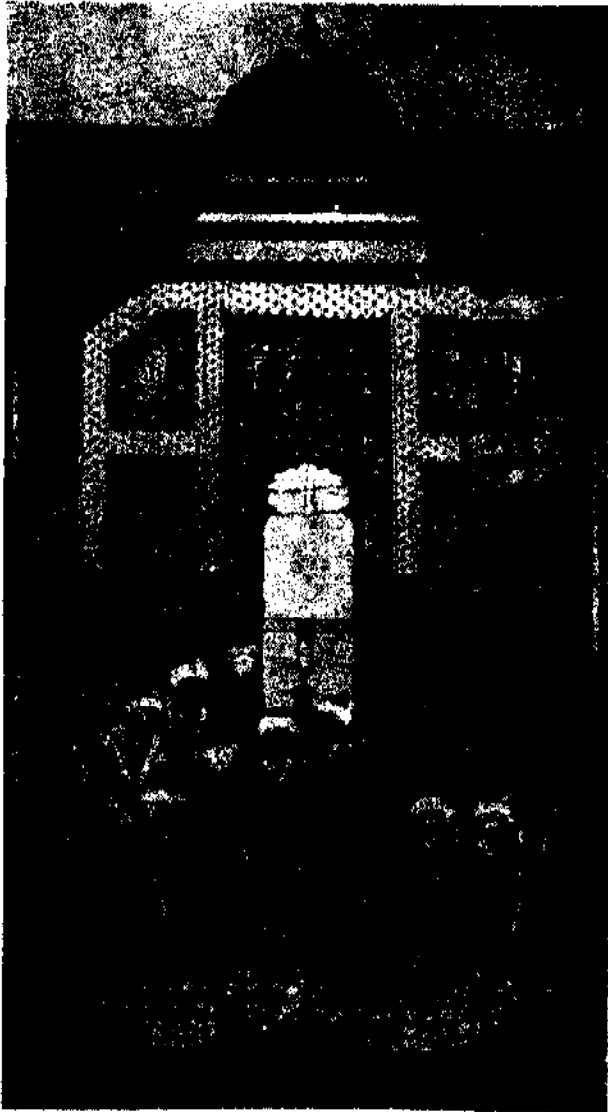
Parsvanatha, Stone sculpture, Koppal Chalukyan Period
12th century A.D. (See Fig. No. 2 in the text)
Plate No. II



A Panch-tirthika image, 1396 A. D.
Plate No. III



A chaturvimshati-Pata, 1473 A.D.
Plate No. IV



An illustration from Rauzatul Mohibblin
(Painting No. 3 of the text)
Plate No. V



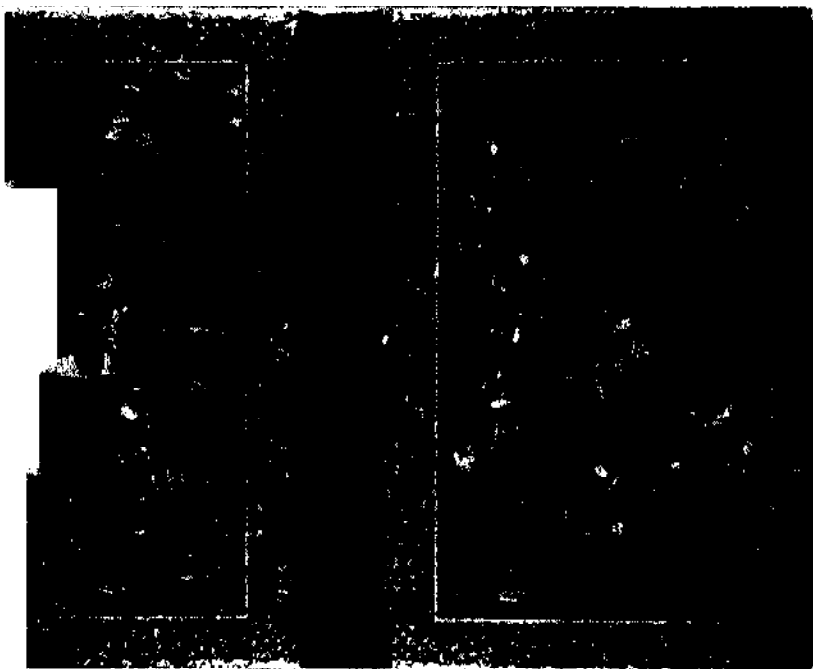
An illustration from *Rauzatul Mohibbin*,
Painting No. 19 of the text
Plate No. VI



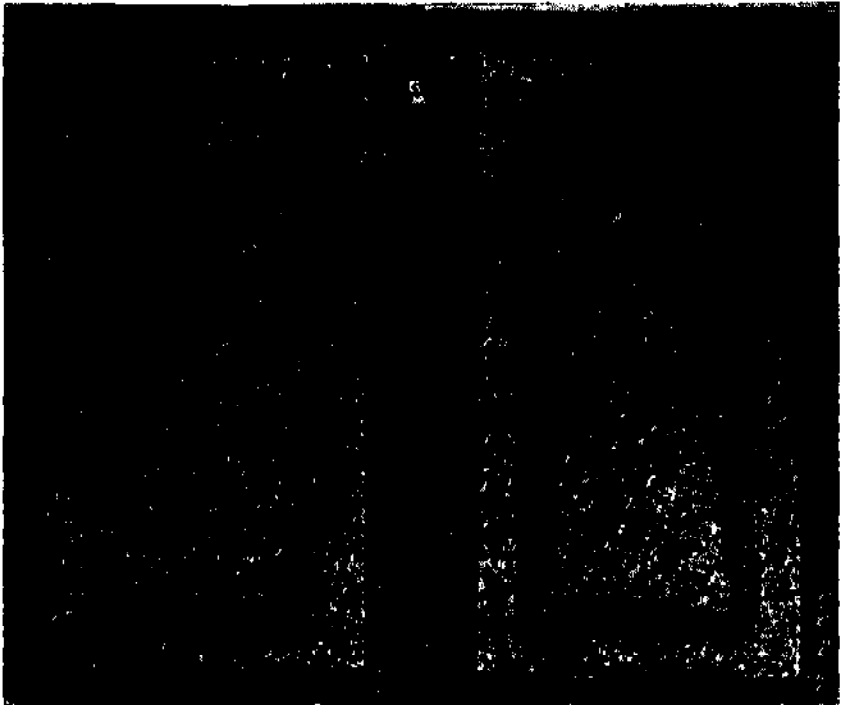
An Illustration from Ranzatul Mohibbin
(Painting No. II of the text)
Plate No. VII



An illustration from Rauzatul Mohibbin
(Painting No. 6 of the text)
Plate No. VIII



Painted Book cover,
Persia
Late 18th century A.D.
Plate No. IX



Book cover made of leather, South India,
Early 18th century A.D.
Plate No. X



A Nepalese temple lamp with the image of Vighnantaka
Plate No. XI



A Nepalese temple lamp depicting
Ganesha's triumph over Vighnantaka
Plate No. XII

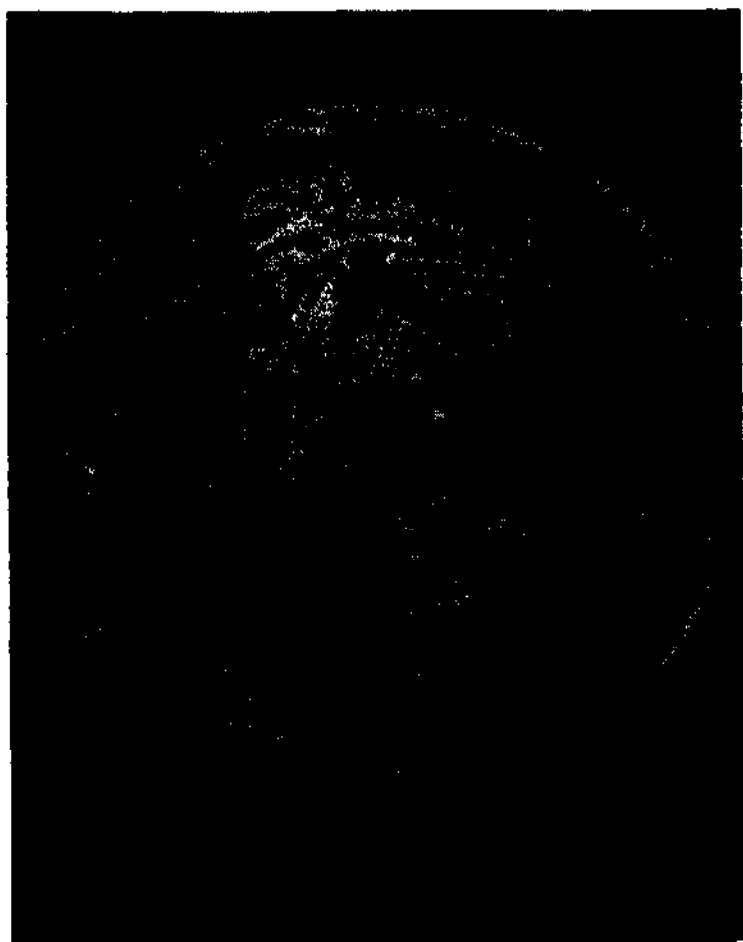


Porcelain vase with lid,
having original sevrès mark on the lid,
(cross L with letter M inside), 1765 A.D.
Plate No. XIII



Porcelain vase with lid having original mark, 1804-1808 A. D.

Plate No. XIV



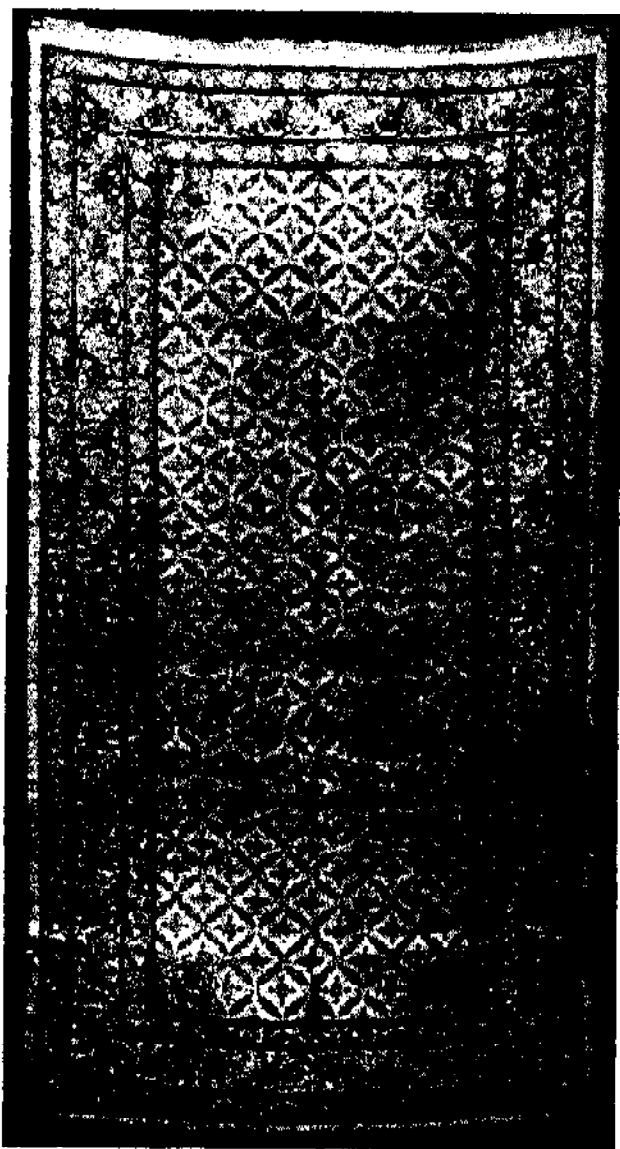
Porcelain saucer decorated in enamel colours
Wan Li period 1573-1619-A.D.
China
Plate No. XV



A celadon vase showing flowers and figures cut out on an overlaid white slip.
Early Sung Period
Plate No. XVI



Nataraja, Bronze,
Late Chola Period, South India,
Plate No. XVII



Kimkhab table cloth
Ahmedabad, 19th century A.D.
Plate No. XVIII



A Kalamkari panel depicting
Vishnu--Shri Ranganayakulu
reclining on Adishesha
Plate No. XIX



Kalamkari temple hanging representing a scene from
Mahabharata, Kalahasti, 19th century
Plate No. XX



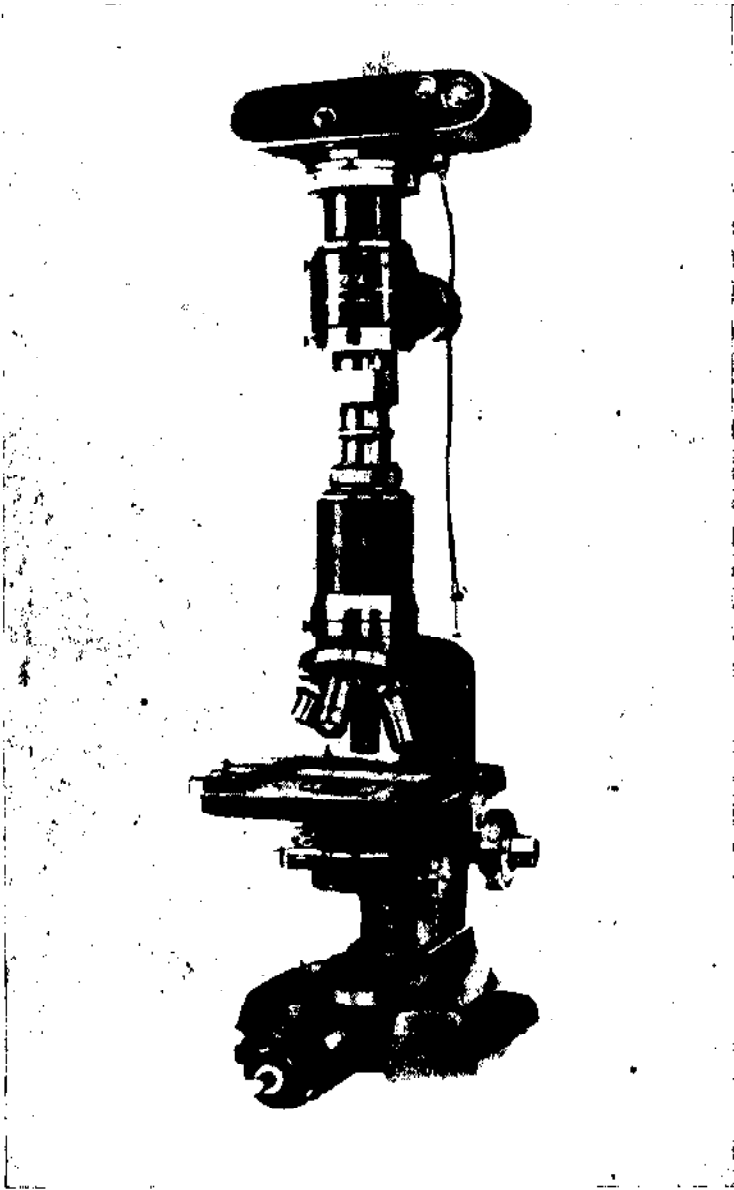
A marble statue with deep and enlarged pits
(Indicated by arrows)
Plate No. XXI



Marble statue with large polygonal cracks
Plate No. XXII



Litz Binocular Magnifier
Plate No. XXIII



Meopta Microscope with Photomicrographic
attachment and Camera
Plate No. XXIV



An oil painting before conservation
Plate No. XXV



An oil painting after conservation
Plate No. XXVI

