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Report of the
Museums Conference held
in Madras Jan 15 to the 17th
1912

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Cambridge



REPORT

OF THE

Museums Conference held in Madras

January 15th to 17th, 1912.

The Conference was summoned by the Government of India, Department of Education, the following proposals having been submitted by the Standing Committee of the Museums Conference :—

1. That the Conference should be held in Madras.
2. That it should open on January 15th, 1912.
3. That the heads of local museums and other persons directly interested in museum work should be invited to contribute papers on the various branches of museum management, but that proceedings should include free discussions as well as the reading of papers.
4. That representatives not only of local Governments and Native States in India, but of the Archaeological Survey, the Geological Survey, and the Agricultural Departments of the Government of India, the Asiatic Society of Bengal, and the Bombay Natural History Society, also of the Government of Ceylon and the Federated Malay States, the Straits Settlements and Sarawak should be invited.

Invitations to all these bodies were issued by the Government of India Department of Education, both directly and through the local Governments, but the Bombay Natural History Society and the Governments of the Straits Settlements and Sarawak were unable to send representatives.

The following delegates were nominated :—

By the Government of India, Department of Commerce and Industry.—
Mr. G. H. Tipper, M.A., Geological Survey of India.

By the Government of India, Department of Revenue and Agriculture.—
Mr. T. Bainbrigge Fletcher, R. N., Officiating Imperial Entomologist, Agricultural Research Institute.

By the Government of Madras.—Mr. J. R. Henderson, M.B., C.M., Superintendent of the Government Museum, Madras, and Mr. A. Rea, Superintendent, Archaeological Survey, Southern Circle.

By the Government of Bombay.—Mr. C. L. Burns, Principal of the School of Art, Bombay.

By the Government of Bengal.—Mr. Percy Brown, A.R.C.A., Principal of the School of Art, Calcutta, and Mr. W. H. Everett, Officiating Superintendent of Industries and Inspector of Technical and Industrial Institutions in Bengal.

By the Government of the United Provinces.—Pandit Daya Ram Sahni, M.A., Curator of the Provincial Museum, Lucknow.

By the Government of the Punjab.—Mr. H. L. Heath, Vice-Principal of the Mayo School of Art, Lahore.

By the Archaeological Survey of India.—Dr. J. Ph. Vogel, Ph.D., Officiating Director General of Archaeology in India.

By the Mysore Darbar.—Mr. G. H. Krumbiegel, Curator of the Bangalore Museum.

By the Baroda Darbar.—Mr. M. K. Kanga, M.A., Director of the State Museum, Baroda.

* செப்பனிருபவர் பெயர் 27 செப்டெம்பர் 11/96 *
* செப்பனிருவதற்காக எடுத்த *
* கொள்ளப்பட்ட நாள் *
* செப்பனிரு முடிந்த நாள் 3/99 *
* சர்பார் கமல் ஆராய்ச்சி *
* மு. பா. எ. உதவி *
* கையொப்பம் கையொப்பம் *

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By the Bhopal Darbar.—Mr. B. Ghosal, M.A., Curator of the Edward Museum, Bhopal.

By the Travancore Darbar.—Mr. T. A. Gopinatha Row, M.A., Superintendent of Archaeology, Travancore.

By the Cochin Darbar.—Mr. N. R. Krishna Aiyar, B.A., Lecturer in Natural Science, Ernakulam College.

By the Jaipur Darbar.—Lala Brij Mohan Lal.

By the Pudukkottai Darbar.—Mr. B. Santappa Chetty, Curator of the State Museum, Pudukkottai.

By the Asiatic Society of Bengal.—Dr. N. Annandale, D.Sc., Superintendent of the Zoological and Anthropological section, Indian Museum, Calcutta.

By the Government of Ceylon.—Dr. J. Pearson, D.Sc., Director of the Colombo Museum.

By the Government of the Federated Malay States.—Mr. H. C. Robinson, C.M.Z.S., Director of Museums, Federated Malay States.

A provisional programme of the Conference was drawn up in December by the Honorary Secretary of the Standing Committee (Dr. N. Annandale) and copies were circulated to all the delegates with a request for suggestions.

His Excellency Lord Carmichael, G.C.I.E., K.C.M.G., Governor of Madras, kindly consented to open the Conference.

Proceedings of the First Day.

The Conference assembled at the Madras Museum on Monday, 15th January, 1912, at 11 A.M.

His Excellency Lord Carmichael presided.

All the delegates were present, with the exception of Mr. M. K. Kanga (Baroda) and Lala Brij Mohan Lal (Jaipur). The Hon'ble Sir Murray Hammick, K.C.S.I., C.I.E., and the Hon'ble Mr. J. N. Atkinson, C.S.I., were present as visitors.

His Excellency Lord Carmichael welcomed the delegates in the following speech:—

Gentlemen,—It is my duty to welcome you here to Madras which I do in the hope that you may find your visit here pleasant, and that your meeting will be productive of much good. Of course, I necessarily hope that good may accrue to Madras. I will not waste your time with a speech, for I know that you have got work to do and are in a hurry to get through it. You are all experts. I am only an amateur. I know that in Britain and in English speaking countries generally at the present time the management of museums and other such institutions is very often in the hands of amateurs. I myself have had a part in the management of various institutions and therefore it is not for me to criticise this system. I daresay it has its advantages and it has its disadvantages. Those of you who are familiar with American or Continental museums perhaps will say that a museum can be developed best when there is no amateur interference. Personally, I am inclined to think that there is this advantage at any rate in an amateur, that he sometimes possesses more guile than does an expert, and perhaps where as with a museum it is necessary to get money out of bodies or persons who are not willing to give money, this may be a quality which is not without its uses. I can certainly in this matter promise you that if at any time I can assist a museum I shall not fail to do my best, but I think the main duty of an amateur who has anything to do with the management of an institution is this, to do his best to see that experts get a fair chance of using their expert knowledge in rendering their institutions more useful. You have a useful work; you help to increase the sum of human knowledge and this is perhaps as worthy an object as any man can set before himself.

I believe that museums in India are very well attended. When I had the good fortune to visit the museum at Colombo on my way here on a Sunday with Mr. Pearson, who I am glad to see is here, I was surprised to see how large was the attendance, and I have been very surprised at the largeness of the attendance in the Madras Museum on several occasions when I have visited it. The attendance seems to me to be better than it is at European museums. What the people come to see I am not quite sure. I notice that one of the most popular exhibits here is a model of a little village, a thing which is very interesting to me or to any

one who has not been in India for long, but I confess I am rather surprised to see what an interest it seems to arouse amongst those who must be familiar with real villages. Presumably that interest is because it appeals to them as being a thing which they can understand. The conclusion I draw from that is that to make a museum interesting to the public it is a great thing to make the exhibits well understood, and that, therefore, a very important part of your functions is to see to the production of really good and instructive labels.

There is but one hint which I mean to throw out to you. I do not know that it is worth much of your consideration, but I cannot help giving it to you for what it is worth. I am told that although there is great interest taken in museums, and although there are very many visitors to them among the Indians, still those visitors do not for the most part belong to the more wealthy classes to whose interest in other countries Museums owe so much. If museums here are at all like those in Europe it will be to your interest to gain the sympathy of wealthy gentlemen who may perhaps make you presents which will add to the lustre of your museums. Here and in Colombo I know it is; I am told that it is the case in all museums in India, your exhibits are almost entirely confined to objects belonging to India—an excellent thing, no doubt for me or for others who come here wishing to learn all they can about your country; but I am inclined to wonder whether you would not stimulate greater interest among the educated or wealthy Indians if your exhibits were not so much confined to objects originating in this country. I have spoken to one or two men, notably to the late Mr. Krishnaswamy Iyer, who was an Executive Councillor, and I gathered from him and from the others that they think there is possibly something in this view. I am inclined to think that very often people are interested in things not belonging to their own country. I know, for instance, that when I got the telegram from the Secretary of State asking me to come to Madras as Governor, quite, without my thinking of it, one of the first things that rose to my mind was the remembrance of a case in what used to be known as the Industrial Museum in Edinburgh, in which there was a specimen of a very large centipede, a specimen in poor condition, but which struck me very much when I was a small boy. This specimen was labelled as from the Malabar Coast, and one of the first ideas that came to me when I thought of the Governorship of Madras was the idea that if I went there possibly I might visit the Malabar Coast and find other centipedes like that which I remembered. But as I said to you originally, the best that an amateur can do is to give the experts a chance, and therefore I shall stop and give you a chance now of getting to your discussion. Once more I welcome you to Madras and wish the Conference every success.

Dr. Vogel on behalf of the delegates proposed a vote of thanks to Lord Carmichael for his address and for the general interest he had shown in the Conference. This was carried with acclamation.

1. The business of the Conference commenced with the reading of a short paper on the Madras Museum by Mr. J. R. Henderson, followed by an inspection of the Museum galleries. Mr. Henderson spoke as follows:—

Your Excellency and Gentlemen,—It seems fitting, before asking the members of this Conference to accompany me on a tour of inspection of the galleries, that I should give a brief account of the Madras Museum.

The idea of opening a museum in Madras was suggested to the Government in 1843 by the Madras Literary Society and Auxiliary of the Royal Asiatic Society. About the same time proposals were also submitted by General Cullen for the establishment of small museums in the various Collectorates to be placed under the care of the Collector, the Medical Officer, and Engineer, in which specimens of local economic products would be exhibited. These suggestions were approved by the Court of Directors in 1846, and the Literary Society presented a small collection, consisting chiefly of geological specimens, to form the nucleus of the proposed Central Museum.

The Central Museum was not, however, started till 1851, the year of the great Exhibition, when a general collection was brought together in the College of Fort St. George, and Government invited the co-operation of the public in its development. It was described as a museum of practical or economic geology and of natural history, and was placed in charge of Dr. Edward Balfour, then a Surgeon in the Madras Army.

In 1854 the Central Museum was moved from Fort St. George to the situation which it now occupies in the Pantheon Road. The Pantheon, or old Assembly Room of Madras, the scene of balls, concerts and theatricals in bygone days, was adapted for its new function, and in course of time added to; at the present day only the central part of the ground floor of the old building marks the former Pantheon.

Local museums were started, in 1855, at Bellary, Coimbatore, Cuddalore, Mangalore, Ootacamund and Rajahmundry. None of these seem to have attained any importance and they had but a short existence, ultimately dying a natural death, chiefly from want of skilled supervision. In spite of the disappearance of local museums, the Madras Museum was long known as the Central Museum.

Dr. Balfour, well-known as the author of the "Encyclopædia of India," a work which passed through several editions, was in charge of the museum during the first nine years of its existence. He reverted to his military duties in 1859, ultimately became Surgeon-General, Madras, retired from the service in 1876, and died in 1889. Dr. Balfour was

sets up the cases, arranges the exhibits, labels them and locks the cases. The only charge made is £2-15-0. At the expiration of a year the Curators of Museums can visit the Victoria and Albert Museum and arrange with the authorities for specimens being changed, and with certain restrictions Curators are allowed to select those examples they wish to borrow. By means of this circulation system the artistic treasures of the nation are made available for study by the workers in the great centres of industry, and to the public in the provinces. In addition to these collections of objects connected with the applied arts, there are three separate collections of pictures illustrating the rise and progress of the art of water colour painting in England, for one of which it is only necessary for the local Museum authorities to apply in order to procure them on loan in their order of application for a period of six months. A responsible official brings the collection to the Museum, arranges the pictures in their proper order, and supplies a historical and descriptive catalogue which can be reprinted by the authorities of the local Museums. The authorities of the Victoria and Albert Museum are also ready to assist whenever Exhibitions relating to the special subjects are organized by Curators of Local Museums. A very fine collection of books on art is at the service of Curators of Museums and lectures upon artistic subjects with a complete set of lantern slides for their illustration can be borrowed. Certain drawbacks have been experienced in connection with the loan of specimens. The chief of these lies in the fact that the cases in the Victoria and Albert Museum are denuded of some of their choicest specimens, and visitors who have come to London from a distance specially to see some well known example of a particular style, find in its place a label saying that it has been removed to some local Museum. To meet this objection a scheme is under consideration to make electrotype and other reproductions of the specimens which can be lent to the local Museums so that the originals may never have to be removed from the cases at the Victoria and Albert Museum, and considerable progress has been made toward the production of this duplicate collection. To carry out such a system of circulating specimens requires considerable expenditure of money, and a skilled staff whose whole time is devoted to this work, and unless Government are prepared to provide adequate funds for the purpose, it is difficult to see how any useful work in this direction can be started. A beginning might be made by the employment of special photographers to photograph the best art specimens found in the different sections of the Museums, and these might be collected and arranged by an officer whose whole business would be to organize a circulating department, or in place of photographs water colour drawings might be made by students of the four principal Schools of Art, of the best specimens in the local and the Imperial Museums. These might be framed and formed into collections, each dealing with a branch of applied art, and circulated in turn to local Museums. This would not be very costly work to carry out, and would assist promising students in the Schools of Art to meet the expenses in their course of study. Photographs and drawings can, however, never be more than an unsatisfactory substitute for originals and good copies of originals, and in this connection he pointed out, that whenever an Exhibition is held in India or Europe, at which Indian art and industry is represented, this country is seen to disadvantage, as a result of the absence of a permanent collection of the best work of the country. The notice given to art workers in India is always too short for any special work to be properly prepared. He instanced the Franco-British Exhibition in 1908, invitations to participate in which did not reach India until December, and the articles had to be despatched by March. The consequence was that although a considerable sum was expended the Indian display was quite unworthy and unrepresentative of the skill of the handicraft workers of this country. If Government would allot an annual sum to be expended in original works or devoted to the making of exact copies of the best specimens in the Museums, a permanent collection would gradually be formed, which would be available for circulation among Museums and when the occasion arose, it would form the nucleus of a really representative display of the best work the Indian craftsman can produce. Whether the more modest scheme of making a collection of photographs or water colour drawings be adopted, or the more ambitious one outlined above be decided upon, it should in order to ensure success be placed in the charge of an officer specially appointed to carry it into effect. Curators and their assistants have their own important duties to perform and the Museums were, so far as his experience went, understaffed already, if these duties are to be carried out efficiently. It would therefore, in his opinion, lead to very little good result, and it would certainly create confusion if the Curators of Museums were called upon to organize collections dealing with special branches of artistic work, suitable for circulation. In England this duty is undertaken by a special staff, and if it is to succeed in India the same system must, he thought, be followed.

Mr. Krumbiegel (Mysore) thought that without financial aid and a central organisation such loan collections could not be run with any fair prospect of success, but that something towards this aim might be done in connection with the provincial Exhibitions. If a really representative exhibit in ceramics, wood-carving, metal-work, etc., was got together at the next Exhibition the exhibit would prove useful to artisans and enable them to compare the work of different provinces. After the Exhibition it could be sent to one of the Museums till required at the next Exhibition, the Exhibition authorities to pay rail charges both ways.

Mr. Henderson (Madras) stated that loan exhibitions were not likely to benefit the Madras Museum the scope of which is practically confined to South

Indian exhibits, and it seemed hardly likely that objects coming within this category would be forthcoming in other parts of India. There would also be, in the Madras Museum at least, great difficulty in finding space for a loan exhibition. On the other hand, it might be possible for the Madras Museum to send objects on loan to other Museums.

Mr. Fletcher (Bengal) was of opinion that, while the preparation and circulation of loan collections is highly desirable the exchange of loan exhibits and the disposal of duplicate specimens should be a matter of arrangement between the various Museums concerned.

Dr. Annandale (Calcutta) said that the Indian Museum was always willing to supply local Museums, using the phrase in the widest sense, with duplicate zoological specimens but that it is easier and cheaper to present the specimens outright rather than to lend them. He recognised, however, that the same rules do not apply to biological as to artistic objects.

In connection with this debate the following Resolution was passed unanimously:—

- VII. That the Conference is of opinion that it is desirable that loan collections of art, archaeological and industrial exhibits, should be made and circulated, but unless a considerable sum of money is provided for the purpose, and a separate department instituted, any arrangement for the interchange of specimens should be left to individual curators.

Proceedings of the Second Day.

The Conference assembled at the Madras Museum on Tuesday, 16th January, 1912, at 11 A.M.

The same delegates were present as on the previous day.

1. A discussion on the Industrial Sections of Museums opened by **Mr. Everett**.

Mr. Everett (Bengal) referred to technical Museums in Germany and London, and suggested consideration of the possibility of extending the Industrial Section of the Indian Museum, Calcutta, to include some simple exhibits illustrating a few useful applications of mechanical and electrical engineering, with sectional and working models where necessary.

Dr. Annandale (Calcutta) doubted whether the Indian public was sufficiently educated as yet to appreciate exhibits of the kind suggested by **Mr. Everett**.

Mr. Krumbiegel (Mysore) considered that technical exhibits fell more within the scope of Technical Schools. Without making additions on the lines indicated by **Mr. Everett** great advantage would accrue to artisans and students in industry by making the existing collections more useful technically.

If, for instance, the collections of woods were arranged according to their uses, if information as to density and breaking strain were given on the labels and if a log was shown cut up to the best advantage with regard to the grain of the wood, these collections would be made more valuable than they are at present.

Mr. Gopinatha Row (Travancore) suggested that if it is not possible to open a Mechanics and Machinery Section in Museums, it is desirable to arrange periodically for scientific conversaziones similar to the one got up some years ago by **Mr. Thurston** in the Madras Museum, so that educated people at least might be given opportunities to learn something of Mechanics and Machinery.

2. A discussion on rules regarding the despatch of specimens to specialists in India or abroad for examination and return opened by **Mr. Robinson**.

Mr. Robinson (Federated Malay States) who confined his remarks to biological specimens was in favour of the rules laid down by the Indian Museum, Calcutta, with regard to the despatch of specimens.

Mr. Henderson (Madras) was entirely in favour of sending out specimens subject to such rules as those of the Indian Museum. He mentioned that at present all type specimens which come to the Madras Museum are sent for permanent retention in the Indian Museum.

Mr. Krumbiegel (Mysore) thought that the term "type specimen" might well be extended to coins. When a Museum possesses a unique specimen of a coin, or a very perfect specimen of a rare coin, it might prepare electrotypes of these type specimens and supply them at a nominal cost to other museums.

Dr. Vogel pointed out with regard to the despatch of specimens to specialists, that this would be very undesirable, in fact impracticable, in the case of stone sculptures and inscriptions on account of the great risk of breakage. In the case of minor antiquities such as terra-cottas, clay sealings and prehistoric implements there was no such objection, but he was not aware that collections of such antiquities had been sent out. In the case of stone sculptures and inscriptions, it would be sufficient to send photos and estampages.

Pandit Daya Ram Sahni (Lucknow) suggested that in place of sending out rare coins from Museums it would be safer to despatch good plaster of Paris casts and thus avoid all risks of loss in transit. Such casts involve very little expenditure and can be deciphered as easily as the original coins.

Mr. Fletcher (Bengal) pointed out with regard to the disposal of "types" of insects that the Imperial Agricultural Department was not represented at the 1907 Conference or at the Simla Conference, and that they had never agreed and cannot agree, so far as concerns their own specimens, that all such types should be deposited in the Indian Museum. It was useless to reopen the arguments for this position and he could only say that they kept no types themselves, nor did they believe that it is safe to keep type specimens of insects in India on account of climatic conditions. This is a point which they had already discussed at length with the Indian Museum and on which they had long since mutually agreed to differ from Dr. Annandale. He only mentioned it lest it should be assumed that they accepted the dictum that all such "types" should be deposited in the Indian Museum.

In connection with this debate the following resolution was passed unanimously:—

VIII. That the Conference approves of the bye-laws of the Indian Museum controlling the loan of biological specimens to specialists in India and abroad and recommends them for adoption to other Museums that have in their possession similar specimens.

3. A paper on the Preservation of Antiquities in Museums, by Dr. Vogel, who spoke as follows:—

Gentlemen,—Under the existing rules the chief object of the Archaeological Department is the preservation of ancient monuments. The term "monument" is here to be taken in its widest sense. Its meaning is fully discussed by Professor Baldwin Brown of Edinburgh in his excellent handbook "The care of ancient monuments," which appeared at Cambridge in 1905. According to a definition quoted by Professor Brown from a draft of a monument law for the Grand-Duchy of Baden, the term includes "all immovable and movable objects which have been handed down from a bygone period of civilization, and as characteristic productions of their time have a special significance for the comprehension of art and art-industry and their development, for the knowledge of antiquity and for historical investigation in general as well as for keeping alive the remembrance of events of outstanding interest."

2. The labours of the Archaeological Department are in the first place concerned with the immovable monuments, the numberless cities and citadels, temples and topes, columns and convents, mosques and mausoleums which are scattered over the whole of India. If we consider the extent of the work and the paucity of the workers, it will be readily understood that this task alone, combined with the exploration and description of the monuments, will absorb the energies of the archaeological officers in such a degree that they can hardly be expected to pay great attention to the preservation of the movable antiquities deposited in our Museums.

3. Yet this task is not less important and urgent. It is a fallacy to imagine that antiquities, if once placed in a Museum, are perfectly safe and require no further looking after. It is true that stone sculptures and bronze implements are not exposed to such sudden destruction as most Natural History specimens, textiles and paintings which may be attacked by insects or spoilt by damp in the space of a few hours. But stone and metal objects are also liable to destructive influences which slowly but surely destroy the fabric, unless timely measures are taken to counteract them.

I may here quote a concrete instance which lately came to my notice. The Epigraphical Section of the Indian Museum contains a large upright slab of stone inscribed on one side with an old-Javanese inscription and on the other side with its translation into Sanskrit. This one, together with several Brahmanical and Buddhist images, was presented by Sir Thos. Stamford Raffles, the British Governor of Java, who was the first to take an enlightened interest in the beautiful monuments of that island. The stone, apart from its archaeological value, possesses therefore additional interest on account of its many recent historical associations. When a year ago Dr. N. J. Krom, Director of Archaeology, visited Calcutta in the course of a tour in India the Javanese inscription was naturally of local interest to him. At his request, paper estampages were prepared, but in the process a portion of the epigraph peeled off and it became then apparent that the surface of the stone had become disintegrated. I need hardly say that any portion of a unique record of this kind, if it is lost for ever and cannot be restored through any human agency, is a great loss. Nor should it be imagined that, if estampages of an inscription have once been published, the original loses its interest and value. Even the best reproductions are imperfect and many doubtful points of decipherment or interpretation the original is the only authentic record which can be resorted to. Besides, I need hardly say that the inscription, whether edited or not, has a great intrinsic value as an object of antiquity. Mr. J. Tipper of the Geological Survey has been kind enough to examine the stone and, in his opinion, the damage was solely due to the circumstance of the slab having been let into the floor and thus exposed to damp. This explains at once why the lower portions of the inscription had suffered most. We should therefore, first of all, have to fix the stones in a brick stand isolated from the ground by means of a layer of asphalt. Next we shall try to harden the surface by treating it with waterglass. Unfortunately the damage which has occurred is irreparable.

Two similar inscribed slabs in the Indian Museum showed signs of deterioration evidently due to the same cause. Also in the lowermost portion of the famous pillars of the Bharhut temple, the pride of the Archaeological Section, the same process of decay had set in. But it will be necessary to multiply instances. These examples will suffice to show the imperative necessity of constant care and expert supervision.

5. It will be evident that, when objects of stone, the most durable of materials, are exposed to such risks, there is far greater danger in the case of objects of metal where exposure to the air and consequent chemical action leads to the wholesale destruction of the object.* Antiquities of baked clay are subject to more rapid decay, unless they are thoroughly cleansed of saltpetre. In some places it is the custom to bake all such antiquities, but in India the necessity for such precautions has not yet, as far as I know, been generally recognised.

6. The method of cleaning and preserving antiquities has, indeed, become an art by itself which in Europe and America more and more attention is paid. An excellent guide is the preservation of antiquities, a handbook for Curators translated from the German of Dr. Friedrich Rathgen, Director of the Laboratory of the Royal Museums, Berlin. This little book ought to be on the table of every Curator entrusted with the care of antiquities. But a thorough study of Dr. Rathgen's book, though eminently useful, would still be insufficient, unless the Curator possesses a real knowledge of chemistry which will enable him to understand the methods recommended and to improve or modify them whenever they have not the desired effect.

7. Finally, I come to the question. What is done in India in the matter of preserving Museum antiquities and what remains to be done? On the first query I answer: very little, and on the second: almost everything. The idea seems indeed still to prevail even among officials responsible for the administration of Government Museums, that if antiquities are only placed in a building, they are safe for ever. I have seen important collections of antiquities entrusted to the loving care of a Chowkidar on the extravagant pay of five rupees per month, and the local authorities utterly failed to understand why any more intelligent superintendence was said to be required for a party of old stones, mostly broken, which certainly no sensible person would endeavour to carry off. The damage which has occurred through carelessness owing to this attitude, I consider, must be very considerable.

8. I may add that in the worst cases the Archaeological Department has taken pity on such neglected collections and made some arrangement for their better custody. But it is hardly fair to expect that the local archaeologist who is held responsible for the upkeep of all ancient monuments in one or more provinces (one of our circles is four times the size of Great Britain and Ireland) should, besides, have to look after half a dozen collections of antiquities. Moreover, a man on the spot is required who can take immediate measures, whenever they are called for.

9. The central provincial Museums, I mean those at the head-quarters of the Local Governments have indeed each a Curator who is an expert in at least one of the sections represented in the Museums in his charge. In some cases he is an archaeologist, namely in the United Provinces (Lucknow) and in Rajputana (Ajmer). In the North-West Frontier Province (Peshawar) he is the Provincial Archaeological Officer. In five provinces Bombay, Madras, Punjab (Lahore), Baluchistan (Quetta) and the Central Provinces (Nagpur) the

* Dr. Annandale has also kindly drawn my attention to an article "On the cleaning and preservation of antiquities by O. A. Rhousopoulos, translated from *Museionkunde*, Vol. VII (1911), pp. 95-111 and published in *The Museums Journal*, Vol. II, No. 5 (Nov. 1911), pp. 131-144."

Curator is not an archaeologist. Burma may be left out of discussion as the Phayre Museum at Rangoon leads only a latent existence, the collections apparently having been staid away for want of a building. Central India (Indore) and the new province of Bihar and Ossa do not possess a Museum. Museums in Native States may be left out of discussion.

10. In such cases in which the Curator of a large provincial Museum is not an archaeologist, it can hardly be expected that the matter of preserving antiquities will receive sufficient attention. I wish it to be understood that this remark does not in the least imply any censure on the officers concerned. I know only too well that much has been done for several of our archaeological collections by Curators who as artists or zoologists were not naturally attracted by a section not pertaining to their special subject of study. But there even among expert archaeologists familiarity with the methods of preserving antiquities not always met with, such a special knowledge is certainly not reasonably to be expected of experts in art, botany or natural history.

11. I have not yet mentioned the most extensive and important of our archaeological collections, that in the Indian Museum, Calcutta. The subject is somewhat difficult for me to deal with, inasmuch as *ex officio* I am in charge of that section and held responsible for its proper management. But from what I have quoted above it will be sufficiently clear that even in Calcutta the state of affairs leaves something to be desired. How far the officer-in-charge is to be blamed for this, I must leave to others to decide.

12. My conclusion is that each of our large collections should be in charge of an expert thoroughly familiar with the methods of preserving antiquities. Where the Curator is an archaeologist, he may naturally be expected to have studied the subject. Where he is a non-archaeologist, it is desirable that he should have an assistant for the archaeological section and such an assistant should not only have knowledge of epigraphy, numismatics and sculpture but also understand chemistry in connection with questions of preservation.

We can certainly not claim a full-time Curator for each of our local museums. In some cases some agency will have to be found, honorary perhaps, but as expert in matters of preservation as can be obtained. The same may be said with regard to museums in Native States. In general, it will be advisable not to increase the number of small museums, but to centralize.

13. For the Central Museum of India, *viz.*, the Indian Museum at Calcutta, we certainly ought to have a special officer for matters of preservation, *i.e.*, not an archaeologist with some knowledge of chemistry, but a chemist possessing a thorough familiarity with antiquities. His duty would be to assist the archaeologist in charge of the section on all questions of preservation. He could also in special cases advise the Curators of provincial museums, and if his activity were thus extended over the whole of India, I am convinced that his office would by no means be a sinecure.

14. My conclusions with regard to the preservation of antiquities are therefore essentially identical with those I have arrived at from the educational point of view, namely that expert supervision is required for our archaeological collections and that, unless such supervision is provided for, the antiquities, even if deposited in a museum, cannot be considered to be preserved. I must crave the pardon of this Conference for having taken up so much time in arriving at a conclusion which is, no doubt, obvious to any one familiar with museum administration.

Dr. Vogel's paper was followed by a general discussion on methods of preservation of specimens of different kinds.

Mr. Burns stated that in connection with the preservation and restoration of artistic specimens there are many points upon which a chemist might give extremely useful advice. He mentioned a few—

1. A suitable adhesive for mounting prints, paintings, and water colour drawings, which will not develop mould and will retain its qualities in damp climates.
2. The removal of spots from prints and water colour drawings.
3. Methods of framing to exclude dust and counteract the effects of condensation of moisture on the glass.
4. Suitable lacquers for metal work.
5. Methods of arresting corrosion of stone and metal articles.

This by no means exhausts the list of the points upon which a chemist could give valuable advice, or the directions in which experiments might be made. Most of those among us who have charge of collections of ancient Indian pictures must have noticed that although they have remained fresh and brilliant for long periods when enclosed in books, from which the light is excluded, they are apt to deteriorate when framed and exposed for exhibition in Galleries, although the greatest care may be taken to guard them from the direct rays of the sun. Some of this deterioration may be due to exposure to ordinary light, but part of it is also to be ascribed to the absorption of moisture by the paper and its condensation on the glass, and reabsorption again, according to the variation of the temperature. The liability of paper to develop spots due to the decomposition of the size used in its manufacture is another common source of trouble in climates such as that of Bombay. A method of preventing this without injuring a print or water colour drawing, or of cleaning old prints and drawings would be of the greatest service to the Curators. Lacquers or varnishes that will protect the surface of metal objects from the

action of the air, without affecting the appearance of their surfaces would be extremely useful. A considerable amount of experimental work has already been carried on with reference to all the points mentioned but the results have either never been published or are not easy to procure. The Chemist would presumably be furnished with a library dealing with his special subject, and would therefore be in a position to give information and advice, from books not readily accessible to Curators, and forward prescriptions, which Curators could have made up by local chemists. From the point of view therefore of those Curators who have artistic objects in their charge the appointment of a chemist appears to be very desirable.

A note on the preservation of lead coins was received from Mr. Henderson and one on the preservation of insect specimens from Mr. Fletcher. They are printed as appendices to the Report.

In connection with this debate the following resolution was passed unanimously:—

IX. That the Conference recommends that a chemist with special knowledge of the preservation of antiquities be attached to the archaeological staff of the Indian Museum, Calcutta. It should be his duty to inspect public collections of antiquities in India and to advise Museum authorities on questions relating to the preservation of specimens.

4. Dr. Annandale submitted a paper by Mr. D. Hooper, Curator, Industrial Section, Indian Museum, Calcutta, on the Volatilisation of Naphthalene in Museums. It is printed as an appendix to the Report.

5. A discussion on the disposal of duplicates and replicas, opened by Mr. Rea.

Mr. Rea (Madras) was of opinion that in the case of coins or finds from prehistoric sites where there are numerous duplicates, the Museum of the province in which the objects were found should retain one of the best specimens, and if possible, a duplicate to provide against loss of the original specimen. The remainder should then be distributed to other Indian Museums. Any balance remaining over should be distributed to the chief Museums in Britain and finally, if the number of duplicates permits to the chief Museums on the Continent. He referred in this connection to the Tinnevely prehistoric collections at present stored in the Madras Museum. After typical specimens of this find have been retained for Madras and others distributed to the chief Museums in India large number of perfect specimens of prehistoric pottery, iron and bronze implements, etc., will remain and the question arises what is to be done with them. The Government objects to their going out of the country and in ordinary cases this procedure is doubtless correct, but in a large find such as this he was of opinion that the surplus specimens should be distributed to Museums abroad.

Mr. Henderson (Madras) in agreeing with Mr. Rea's suggestions mentioned that a large number of archaeological specimens, many of which are duplicates, had accumulated during recent years in the Madras Museum as a result of Mr. Rea's excavations and that they were at present occupying space which can ill be spared for the purpose. He would therefore welcome any scheme which would result in the removal of these duplicates. He referred also to those coins acquired under the Indian Treasure Trove Act, which remain over after the provisions of the Act with regard to distribution in India have been carried out. He was averse to these surplus coins being melted down at the mints and he had recently made proposals to the Madras Government to distribute a certain number to Museums in Europe, which proposals had been approved of and carried out.

Pandit Daya Ram Sahni (Lucknow) suggested the establishment of exchange relations among the various Museums of India, as well as between Indian and Western Museums. Speaking with reference to archaeological exhibits, he observed that this arrangement would afford special facilities for a comparative study of the different schools of ancient Indian Art.

Dr. Vogel pointed out that there is a great advantage in sending duplicates to Museums in Europe where they are far more highly appreciated and more thoroughly studied than in India. He quoted the instance of a pair of modern clay figures from Madhura, costing four annas, which he presented to an Ethnographical Museum on the Continent. The Director thanked him

profusely and wrote in one of the leading papers an interesting article on the use of votos, like the figures in question.

Mr. Ghosal (Bhopal) advocated the claims of the younger Indian museums to a share in the distribution of duplicates.

In connection with this debate the following resolution was passed unanimously:—

X. That the Conference is of opinion that in case a provincial museum possesses duplicates of antiquities, such duplicates should be in the first instance distributed among other museums in India which require such antiquities in connection with their existing collections. The remainder should be presented to the chief museums abroad. The Museum authorities concerned will in each case have to decide which museums should be selected for distribution. It should be understood that this resolution excludes ancient coins to which the existing Treasure Trove rules now in force apply.

6. A discussion on the relation of the Indian Museum, Calcutta, to local museums; opened by Mr. Henderson.

Mr. Henderson (Madras) stated that in his opinion the Indian Museum should be regarded as a central institution to which local museums in India might apply when special information was required, and that local museums might reciprocate by rendering such assistance to the Indian Museum as lay in their power. It would be easy, however, to overdo the demands on such a central institution and it would be unreasonable to expect it to undertake for example the naming of large zoological collections. During the short time that he had been connected with the Madras Museum he had received much assistance from the Indian Museum, chiefly in matters zoological, and he had tried to return this by sending South Indian specimens and furnishing information in reply to enquiries made by officers of the Indian Museum.

Mr. Ghosal (Bhopal) cited instances of assistance which had been rendered by officers of the Indian Museum to the Edward Museum, Bhopal.

In connection with this subject the following Resolutions were passed unanimously:—

XI. That the Conference is of opinion that the Indian Museum, Calcutta, should stand in the position of a central museum, to which local and provincial museums in India would refer in questions where expert advice and assistance are required.

XII. That, in order to assist the Indian Museum in its various branches of work it is desirable that local museums should give what assistance they can to the officers of the Indian Museum in connection with any research work in their respective sections.

Mr. Krishna Aiyar (Cochin) was of opinion that in regard to the fact that museums on a small scale are necessary for colleges of instruction, the relationship recommended by the Conference between the Indian Museum and local museums should also apply to local museums with reference to college museums. He framed a resolution to this effect but it was dropped for want of a seconder.

7. A reaffirmation of Resolutions XII, XIII and XIV of the Conference of 1907 introduced by Mr. Burns.

Mr. Burns (Bombay) brought to the notice of the Conference, Resolutions XII, XIII, and XIV of the Conference of 1907, and in asking this Conference to reaffirm them took the opportunity of restating the arguments which appeared to be of sufficient weight to induce the first Conference to adopt these resolutions. For a considerable number of years Local Governments have been ordered to prepare monographs upon artistic and industrial subjects connected with their own provinces. The Local Governments in their turn have ordered selected officers to undertake this work. The officers selected have in many instances been men who have not had any previous knowledge of the subject upon which they have been called upon to write, and they have not been relieved of their ordinary duties in order to acquire the necessary knowledge. No remuneration, except the presentation of six copies of the monograph they have produced has been given for the extra labour undertaken, nor have they been given grants for travelling allowances to enable them visit centres where the

particular forms of artistic work they have been called upon to describe are being carried on. Under the circumstances it is not remarkable that the resultant monographs reflect the conditions under which they have been prepared, and are of no very great value. The monographs of each local government are published separately, and have been produced in a number of different styles and vary greatly as regards their completeness and the character of the illustrations they contain. Presumably the same subject has been treated by the compilers of monographs in each year, but as they have never been gathered together and issued as a single volume, he was unable to say whether this is the case or not. It is equally difficult to say what useful purpose they have served.

During the period these monographs have been produced, the Government of India have published a series of plates illustrating works in the applied arts made in India, for the use of craftsman and Schools of Art, but no systematic treatment of any one craft has been undertaken. *The Journal of Indian Art*, published under the patronage of the Government of India has during the same period published accounts and illustrations of artistic Indian work in the same unsystematic manner. There has been no attempt to combine the work of these three classes of publications or to co-ordinate the information relating to any definite subject dealt with by them separately. The result is that it is extremely difficult to obtain reliable information except by searching through their pages for the scattered articles, which when found are often discovered to be almost identical. A great deal of overlapping has undoubtedly occurred, and it was with the object of procuring a complete record or survey of each of the artistic crafts that the proposal was made to produce a series of monographs of the artistic crafts of India, in which each artistic industry in its turn would be thoroughly and systematically described and illustrated. This proposal was made at the Conference of the Principals of Schools of Art held in Calcutta in 1905, and was recommended to Government. It was placed before the Conference of Curators of Museums in 1907 and received its support, but hitherto no action has been taken to carry out the proposal.

He thought that all Curators of Museums and Principals of Schools of Arts will agree as to the value such a complete and fully illustrated record of the best examples for instance of the metal-work, of the whole of India would be to them, in which all that has previously been written upon the subject could be gathered together and systematically arranged, corrected and brought up to date by an expert in this particular subject. The same applied to other artistic crafts such as wood carving, textiles and other Indian indigenous arts. Were such a series of monographs undertaken they would form a complete survey of the arts of the country, and would be a guide to the public who purchase Indian work regarding the question of styles. A great deal of the degradation of Indian craft work is due, not to the introduction of European patterns, but to the mixture of the styles indigenous to different parts of the country, resulting from the concentration of craftsmen from widely separated portions of India into the large workshops of the Presidency towns. These incongruities are less easy to detect by laymen than is the case when obviously European and Indian models are associated, and such monographs as he had mentioned would supply the inexpert purchasers with the knowledge they lack. Both as records and as practical elements in the revival of purely Indian workmanship and design these monographs would serve a most useful purpose, but they must be complete and written by experts, who could give the whole or the greater portion of their time to the work, who would also be given the opportunity of visiting the chief museums of the country and the centres where the particular artistic industry, they are dealing with, is being carried on. This is the only satisfactory way of bringing the work to a conclusion within a reasonable time, and with many of the ancient types of craftworks dying out or being modified by European and other influences the question of time is an important one. If one of the artistic crafts were dealt with each year by an officer specially deputed for the purpose, in the course of six or seven years the whole series would be completed, and a final survey of the artistic industries of the country would be made, which would not call for revision for a number of years.

The copyright of these monographs would belong to Government and he thought there can be no doubt but that a large portion of the cost of their production would be recovered by sales to the public and to foreign museums. These are the principal points in favour of the proposal that he had to place before the meeting and he trusted that they would appear to be of sufficient value and urgency to move the present Conference to re-affirm the resolutions passed at the Conference of 1907.

In connection with this subject the following Resolution was passed unanimously:—

XIII. That the Conference re-affirms Resolutions XII, XIII, and XIV of the 1907 Conference.

[These Resolutions of the 1907 Conference are as follows:—

“XII. The Conference consider it desirable that the publications on art—pure and industrial—made in India should be unified. The publication should take the form of a serial edited and conducted in a way similar to the Memoirs of the Geological Survey, Geological, Botanical and Archaeological Departments.”

"XIII. That the Provincial monographs on Industrial Arts and the Technical Art series published by the Survey of India should be absorbed. From the serial extra plates might be easily struck off for the use of Schools of Art and for other purposes."

"XIV. The Conference believe that the present system, by which the Provincial Governments are asked to write monographs on specified subjects, cannot much longer continue, because the subjects common to most of the provinces have now been exhausted, and further the Conference believe that the Technical Art series find a far more extensive sale among European visitors to India than among the class for whom it was intended. The class to which these visitors belong would be more easily reached by a serial than they are by the present publication, while the artisans should be reached by pattern books through the Schools of Art. The serial would form the basis from which the designs of the pattern books should be taken."

8. A continuation of the discussion with reference to the Standing Committee commenced on the first day of the Conference.

A number of the delegates took part in the discussion and the following Resolutions were unanimously passed:—

I. That Resolution XXIX of the 1907 Conference shall be re-affirmed with the following addition:—"and that the Standing Committee be elected at every Conference, members of the old Committee being eligible for re-election. The Conference does not, however, consider it necessary that the number of members should be fixed."

[Resolution XXIX of the 1907 Conference is as follows:—"That a Standing Committee be appointed to make arrangements regarding future conferences and to advise on Museum matters."]

II. That the Standing Committee shall have powers to coopt additional members if they consider it desirable.

XVIII. That the Standing Committee be composed of the following members:—

DR. N. ANNANDALE.
MR. PERCY BROWN.
MR. J. H. BURKILL.
MR. C. L. BURNS.
MR. J. R. HENDERSON.
MR. J. H. MARSHALL.

[Note.—The first two of the above resolutions are numbered I and II to give them their proper place in relation to the other resolutions passed by the Conference, while the third is numbered XVIII in order to bring it in at the end of the list and thus coincide in position with the corresponding resolution passed at the 1907 Conference.]

Proceedings of the Third Day.

The Conference assembled at the Madras Museum on Wednesday, 17th January, 1912, at 11 A.M.

The same delegates attended as on the previous days. His Excellency Lord Carmichael was present during the consideration of the first two topics on the programme.

1. A paper on Museums as Educational Institutions by Dr. Vogel, who spoke as follows:—

Your Excellency and Gentlemen,—If I venture to address this Conference on such an important subject as the meaning of museums as educational institutions, I wish it to be understood that I have not had the advantage of ever holding the curatorship of a museum either in Europe or in India. My remarks will, therefore, be those of an outsider, but I am confident that any important points which I may have overlooked will be readily supplemented by the members of this Conference, who are real experts in museum affairs. On the other hand, I have naturally been interested in archaeological collections from the

time I joined the Archaeological Survey eleven years ago. I have been closely connected with several museums in Northern India and have been able to inspect many in other parts of the country. For the last year I have, moreover, held charge of the most important collection of antiquities, that of the Indian Museum in Calcutta. I need hardly say that, being an archaeologist, I can only deal with archaeological collections, but possibly my observations will be applicable, *mutatis mutandis*, to other sections also.

2. The Hindustani term Ajaib-ghar or Ajaib Khānah* (Kipling translates it, by "Wonder House") by which museums are indicated in this country has always appeared to me to be significant of the attitude of the Indian public towards such institutions. Museums, in the popular idea, are indeed places of recreation where one can see and wonder. That they are appreciated as such, is proved by the very large attendance on which Curators are in the habit of priding themselves in their Annual Progress Reports. The Indian Museum at Calcutta has a larger annual attendance than any other Museum in the world. From the recreative point of view, there cannot be the slightest doubt that our museums answer the purpose of eminently popular institutions.

3. In a gathering of museum experts, however, I need hardly say that this point of view is not a very high one and that a museum serves a more dignified object than the temporary amusement of the crowd. Unfortunately the popular idea is not limited to the populace and may occasionally be met with even among Government officials on whose attitude in the matter the welfare of our museums largely depends. It is, for instance, a not uncommon notion that museums must in the first place be made "attractive" to the public. To promote this object, well-meaning benefactors will sometimes present the local museum with objects perhaps curious or even valuable in themselves, but incongruous with the existing collection†. In this manner museums are liable to degenerate into real curiosity shops‡. It is a far more serious danger if responsible officials hold the crude view that museums are merely places of recreation and consequently refuse the necessary means for the upkeep of such institutions of expensive luxury.

4. It is a fortunate sign that a year ago museums were placed under the newly created Department of Education and there is therefore some reason to hope that their educational significance will be more and more realised. The moment would seem to be opportune for a discussion of the question how far museums can be considered to be educational institutions and how far museums in this country answer their purpose as such.

5. On the first point I need hardly enlarge. No educationalist now-a-days will doubt the importance of historical studies; for only a knowledge of the past can make us understand the present and prepare for the future. No one can call himself educated who has not studied the history of mankind in general and of his own country in particular. By history I understand not the "histoire-bataille" but the history of human civilisation, what the Germans call "Kulturgeschichte." Another point on which most authorities will agree is that the study of historical books can in no way be more effectively supplemented than by the study of historical monuments, the term being taken in its widest sense. Visual tuition will even be more direct, more impressive and more lasting than oral education. In a country like India where written history is almost unknown previous to the Muhammadan conquest, the ancient monuments are indeed more important than in any other country of the world, both for historical research and for historical education. The student of ancient Greek civilisation can read Herodotus and Xenophon; the student of ancient Indian culture has to read the pillars of Aśoka and the Jātaka scenes of the Bharhut stūpa.

6. It is another well-known fact that education in this country is very liable to become too mechanical, the acquisition of knowledge being considered only as a means to pass certain examinations and thus to secure certain Government appointments. The study of the monuments under the guidance of an able and enthusiastic teacher may help to some extent to remedy the defects of the historical studies according to the system of education now in vogue.

7. We come to the second point, how far our Indian museums answer their purpose as educational institutions and what can be done to remedy any deficiencies in this respect. It will be evident that a collection of antiquities by itself is of little or no educational value. It will perhaps be argued that, as objects of art, they ought to appeal to those endowed with a sense of beauty, even without further comment. This is true, I admit, to a certain extent; but where we are confronted with objects of an ancient and strange civilisation (and even to the modern India these objects are strange) some explanation is certainly required. One can, no doubt, appreciate the beauty of a Buddha image, but it seems to me impossible fully to realize the artistic merit of a sculptured scene of Buddha's life, if one

* When last year I had the honour of addressing the notables of Mathura on a proposed extension of the local museum I suggested the term Sarasvatī-sālā "the hall of Sarasvatī, the goddess of art and learning," which seemed to me to correspond to the word "Museum." But my idea did not find favour, if I may judge from the amount of subscriptions realised on the occasion.

† A gentleman in Peshawar recently threatened to enrich the local museum with a stuffed crocodile which, notwithstanding its close relation to the makara of Indian art would have looked very much out of place among Græco-Buddhist sculptures.

‡ A typical instance was the Municipal Museum at Delhi which, I am thankful to say, has ceased its inglorious existence. The catalogue of that institution prepared by an industrious Babu may still be consulted by any one interested in curiosities.

has no notion what the scene is meant to represent. And even while admiring a Buddha image by itself, one may be led into strange mistakes*.

8. The practical means of rendering a collection of antiquities truly educational seem to me to be fourfold. They are 1st, arrangements; 2nd, labelling; 3rd, cataloguing; 4th, oral tuition. How much depends on arrangement for the right understanding of archaeological exhibits will at once become clear if I quote the instance of the Indian Museum, where the general display of the sculptures in historical sequence will enable the visitor to survey and study the whole range of Indian sculptural art(†).

The first archaeological gallery contains the Bharhut railings representative of the early Central-Indian school of the second century B. C. The next room shows the influence of Hellenistic art on the Græco-Buddhist sculpture of Gandhāra, i. e., the Peshāwar district and surrounding territories. Then follows the Mathura school a direct descendant of the early school developed under strong influence from Gandhāra. The Sārānāth sculptures show how in the Gupta period (c. 300-600 A. D.) a new indigenous art sprang from the Mathurā school, and finally we find the latest stages of Indian sculpture expressed in the mediæval art of Bihar and Bengal. Another instance of scientific arrangement is afforded by the Peshāwar Museum which, founded only a few years ago, has had the advantage of being placed under the direct control of an expert †. In the Madras Museum an attempt has been made to show the Amarāvati sculptures reconstructed as parts of a stūpa railing. The result, however, cannot be said to be altogether satisfactory. If in our other museums the scientific arrangement is generally wanting, it is often due to the character of the museum building. For it should be understood that several of our collections are housed in edifices not originally intended for museums.

9. As to labelling, there may be difference of opinion. Some authorities hold the view that the labels must be as detailed as possible, so that, put together, they would practically form a complete catalogue. According to others the labels should be calculated to supply only so much information as is required by the ordinary visitor, I mean the non-expert. Consequently they should be brief and clear, all technical terms being, as much as possible, avoided. Any how, the absolute necessity of labelling certainly no one will deny. It may be said with some reason that labels are even more needed than a catalogue, though I personally doubt this with regard to our Indian museums. That a great deal is still to be done will be evident from the fact that neither the splendid Gandhāra sculptures at Lahore nor the important Amarāvati collection at Madras have yet been labelled. The labels in the Lucknow Museum require thorough revision. I may say that both the Lahore and Lucknow collections have now been taken in hand so that practically only at Madras proper arrangements are still to be made. In the Indian Museum the great majority of the archaeological exhibits are labelled, but several of the labels are unsatisfactory. It is a work requiring constant attention. The Græco-Buddhist sculptures at Peshawar have been labelled last year. The collections at Sārānāth and Mathurā have partially been labelled, but something still remains to be done especially at Mathurā. When inspecting the Rajputana Museum at Ajmer last year I found only a few flimsy paper slips pasted on to the sculptures and inscriptions. These have now been replaced by more permanent labels.

10. I need not go into any details regarding the nature of the labels, though this is a question of no small importance. I only wish to say that from an educational point of view, the labels should be both in English and in the vernacular. This has been done in Lucknow and in Peshawar. In the Indian Museum and in practically all other museums labels in the vernacular are very much wanted. The choice of the vernacular will have to depend on the locality. For Brahmanical, Buddhist and Jain sculptures Hindi will be preferable to Urdu.

11. The necessity of catalogues will require no demonstration. It seems to me that whereas the labels should be intended for the general public, the catalogue ought to contain the fullest information possible, so as to satisfy not only the dilettant but also the expert. An introduction with chapters on the general character of the sculptures and their history is essential. Catalogues of our Indian collections are not only required for the visitor, but perhaps even more for the many who are not in a position to study the materials on the spot. I am thinking especially of scholars in Europe who include some of the best experts in Indian art and archaeology. For their purpose it is of the utmost importance that the catalogues should profusely be illustrated from photographs on a sufficiently large scale, for the study of details.

12. In the matter of cataloguing also a considerable amount of work still remains to be done, especially with regard to the Indian Museum. A catalogue of the archaeological section in two volumes was published by Dr. John Anderson in 1883. (‡) Considering that the

* I recall the instance of an "intelligent" tourist who in the account of his travels, while commenting on a Buddha seated under the Bodhi tree, remarked how beautifully the drooping right hand expressed the Buddhist idea of complete "abandon" and indifference. In reality the down-stretched hand by which the Buddha called the Earth to bear testimony to his good deeds, signifies the moment when, attacked by Māra, he expressed his unshakeable resolution not to yield to the Evil one but to conquer true knowledge and thus show mankind the path to salvation.

† Though the general arrangement of the Indian Museum collection is admirable, there is much room for improvement in details. Especially in the so-called Gupta gallery the display of the sculptures is very unsatisfactory owing to the use of ornamental but very unsuitable stone benches which bring about a great waste of space.

‡ Dr. Spooner of the Archaeological Department who arranged the collection has followed M. Foucher in his *Art græco-bouddhique du Gandhāra*. Consequently we have 1st, Indian decorative elements; 2nd, Classical decorative elements; 3rd, Scenes of Buddha's life; 4th, Devotional scenes; 5th, Buddha images; 6th, Bodhisattva images.

§ In 1849 there had appeared a catalogue of curiosities in the Museum of the Asiatic Society by Dr. Rajendra Lal Mitra.

author was a zoologist, this publication was a remarkable performance. It is not illustrated, yet the description of the sculptures is so full and accurate that it has enabled scholars in Europe to identify the subjects without even having seen the originals. For our present requirements, however, it is altogether insufficient. Apart from the fact that the author was not an archaeologist, the study of Indian antiquities has made such enormous progress since the book was published, that it cannot be considered anything but obsolete. A supplementary catalogue by the late Dr. Bloch has been recently published, but this publication, though valuable as the work of a real expert, deals only with a comparatively small portion of the collection. What is most urgently wanted is a complete illustrated catalogue of the whole collection of sculptures and inscriptions, a work, I need hardly add, requiring much time and labour.

13. No catalogue exists of the Madras collection of antiquities and no arrangements have so far been made to provide one. The cataloguing of the Gandhāra sculptures at Lahore has been taken in hand and will, I hope, be completed this year. Of the collections at Lucknow, Sārānāth and Nagpur catalogues have been prepared by Babu R. D. Banerji, Pandit D. R. Sahni and Pandit Natesan Ayar, respectively. These will be published as soon as I have been able to revise them. They will all be illustrated. For the museums at Mathura, Delhi and Chamba I have published illustrated catalogues which are now available to the public. I understand that Pandit G. S. Ojha has undertaken to catalogue the collection at Ajmer. Of the important collections of Gandhāra sculptures at Peshawar, no catalogue has yet been published, but Dr. Spooner has brought out a very useful illustrated guide. A similar handbook of the Lahore archaeological collections (also illustrated) had been previously published by Mr. Percy Brown. I may remark here that such guides, though not intended for the expert, are of eminent use and on account of their small cost and handy form, are perhaps even more acceptable to the interested visitor than a complete and more technical catalogue. It would, therefore, be highly desirable that such hand-books, both in English and in the vernacular, should be prepared for all our other museums, in the first place for the Indian Museum. Apart from the two publications mentioned, everything in this respect still remains to be done.

14. With reference to our coin collections I wish to add that for the Indian Museum there exist two excellent catalogues, one dealing with pre-Muhammadan coins by Mr. Vincent A. Smith, I.C.S. (ret.) and the other on Muhammadan coins in these volumes by Mr. H. Nelson Wright, I.C.S. A third catalogue of the remaining coins, mostly belonging to Native States, is still wanting. Mr. Whitehead, I.C.S., has lately brought out a catalogue of the small collection in the Delhi Museum. The same numismatist has now undertaken to write a catalogue of the much more extensive collection of coins at Lahore which has recently been enriched with the Græco-Bactrian section of the Bleazby collection. As the previous catalogue of the Lahore coins by Mr. Rodgers could not be considered to be up to date, this work now undertaken by Mr. Whitehead under instructions of the Punjab Government will be of the utmost importance for the study of Indian numismatics. The valuable collections of coins in the Lucknow Museum still remains to be described. I am not aware of any other coin collections having been catalogued except those referred to. As a numismatical curiosity I may mention a catalogue of coins belonging to the Bhopal State. It was composed by a local official and will provide for the reader amusement, if not instruction. Above, no reference has been made to gems, clay sealing, terra-cottas, pottery and other minor antiquities, in the cataloguing of which almost everything still remains to be done.

15. It would seem that with all our collections well arranged, labelled and catalogued (a goal still very distant) nothing more would be required from the educational point of view. This, however, is certainly not the opinion held by the best authorities in Europe and America. A Curator who is a real expert can and ought to do a great deal more to interest and inform the public. He will, of course, have to answer any queries made to him either verbally or in writing, and supply photographs and casts, whenever required. But he himself should take the initiative and arrange for lectures and demonstrations in the galleries. He should publish papers and thus make his collections as widely known as possible outside the museum building. I have had opportunities to note how much a well-informed curator can do to interest the public in his collections.

16. I hope that in the course of this note I have not entered too much into detail, but it seemed to be useful not only to discuss the question from a theoretical point of view but also to state what exactly has been done and what still remains to be done to render our archaeological collections truly educational. What I wish to emphasize is that nearly all that has been accomplished so far was done by experts and I need hardly add that most work of this kind can be done only by experts. It is, therefore, a first essential that all our archaeological collections should be in charge of fully competent archaeologists. Let us see how far this aim has been reached.

17. Up to 1903 none of our archaeological collections had ever been placed in charge of an archaeologist with the sole exception of the Indian Museum collection for which an expert was specially appointed. This expert, the late Dr. Bloch, who has been appointed in 1896 joined the Archaeological Survey in 1900 and since then could not devote his full attention to Museum affairs. When in 1902 Mr. J. H. Marshall was appointed Director General of Archaeology, he fully realized the necessity of providing expert supervision for the various archaeological collections. His proposal that the Archaeological Superintendents should be connected with the archaeological sections of the provincial museums in a honorary capacity was sure to appeal to the Government owing to its obvious advantages of economy. In this

sup 2. In connection with this debate the following resolution was passed unanimously:—

XIV. That the Conference is of opinion that the subject of educational value of museums is, particularly in India, one of great complexity and should not be dismissed by Government without the most careful consideration and consultation.

Museum experts and the position of the Archaeological Survey of India was read by Mr. Rea, who said that so large a subject should not be lost sight of. The position of these people of India may be made use of as an instance to the Government.

2. All permanent Superintendents, while exercising its of the Madras Museum since 1882, when I first came to India, have been medical officers, Surgeon-General Bidie, and Messrs. Thurstall and Henderson. Acting Superintendents, included a military officer and Superintendent of the Madras Museum, as I have no exact knowledge of the position of these people of India. Even with Madras, the position of these people of India may be made use of as an instance to the Government.

3. These Superintendents, while exercising its of the Madras Museum since 1882, when I first came to India, have been medical officers, Surgeon-General Bidie, and Messrs. Thurstall and Henderson. Acting Superintendents, included a military officer and Superintendent of the Madras Museum, as I have no exact knowledge of the position of these people of India. Even with Madras, the position of these people of India may be made use of as an instance to the Government.

4. About the date named, some time ago, an Archaeological Survey of India was held in a small room in the Archaeological Department, usually some of the departments of the Government. The position of these people of India may be made use of as an instance to the Government.

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12. The position of these people of India may be made use of as an instance to the Government. The position of these people of India may be made use of as an instance to the Government.

claim on Treasure Trove, it should be extended to these lesser objects also, with the provision that if Government claims them, the intrinsic value may be paid to the declared owner.

8. The Madras Museum is imperfect in its planning and has evolved its present large proportions from additions being made to the buildings at various times as necessity for increased room, or the provision of funds by Government provided. But nevertheless, large as the building is, I believe there is still a want of space in almost all the sections, and notably so in that devoted to archaeology. A new archaeological gallery has been sanctioned by Government, and it is hoped that its erection will shortly be proceeded with. But even when it is ready, it will be insufficient for the purpose, and will only partly rectify matters, as it will be possible to immediately fill it with only a portion of the objects now stored in godowns of the Museum, and yet leave numbers for which there is no exhibiting space whatever. It is therefore imperative that additional room beyond that already sanctioned for the exhibition of all archaeological objects be provided.

9. Further, the archaeological section of the Madras Museum should be in one and only one part of the building, and each room be adjacent to and in communication with the others. At present, the Amaravati room is in one portion. Some distance off, are the two rooms with the Breeks collection of Nilgiri prehistorics and my Tinnevely prehistoric; while the Bruce Foote collection of palaeoliths and neoliths is situated over the Tinnevely collection, but only reached by a circuitous route upstairs. The proposed new archaeological building above alluded to, is to be in two storeys, the lower of which is to contain archaeological objects, while the upper one is, I believe, to contain economic products. It would be infinitely preferable that this upper storey be also devoted to archaeology, and the two rooms be directly connected by an interior staircase. A similar provision should be made at the Tinnevely and Bruce Foote collections.

10. Again, the coins are mostly, if not all, in closed cases in the Superintendent's old office in a distant upper part of the building, not generally open to the public, and the Treasure Trove objects, chiefly consisting of Hindu gods which provide a source of attraction for caste visitors, are ranged along the top of the staircase leading to the upper storey, instead of being, as they should be placed among the archaeological exhibits. This is seemingly due to the same want of space which has kept the smaller archaeological objects for years in their packing cases in sheds and verandahs, and stone sculptures lying outside exposed to the weather in various parts of the grounds of the Museum. But it only shows the urgent necessity there is for extra additions to be made to the archaeological section, even beyond that proposed, and till this is done, archaeology will never occupy its true position in the Museum and altogether fulfil the purposes for which this section is intended.

11. Should any or all of these suggestions be decided on, the result entirely depends on the provision of funds by Government for carrying them out.

With reference to this paper the following Resolution was passed unanimously:—

XV. That the Conference desires to express in the strongest possible manner its conviction that the different branches of provincial museums should be under expert management, and that no exhibition of specimens can have much educational value unless it is arranged and supervised by a man who has made a special study of the class of objects of which it consists.

3. A statement with reference to Phayre Museum, Rangoon, was made by Dr. Vogel.

In connection with this statement the following resolution was passed unanimously:—

XVI. That the conference expresses the hope that a suitable building will be provided before long for the Phayre museum collection, Rangoon, now housed in one of the rooms of the Secretariat, and that a suitable curator will be appointed at once to superintend it.

4. A discussion on the institution of Students' Days in Provincial museums. Opened by Pandit Daya Ram Sahni.

In connection with this discussion the following resolution was proposed:— "That the conference is of opinion that the system followed in the Indian museum of having one day a week reserved for students should be followed also in provincial museums. The general public might be admitted on students' days on the payment of a small admission fee, while students are given free tickets, as this would ensure the students not being interrupted in their work by the presence of large numbers of people."

Mr. Henderson (Madras) pointed out that in Madras there was as yet little demand for opportunities of special study on the part of students, and that the

demand could readily be met under the ordinary conditions of admission. In his opinion it was, therefore, unnecessary to exclude the general public on any day or part of a day.

An amendment that the words "where a reasonable demand exists" be added after the words "Provincial Museums" was put to the meeting and carried.

The substantive proposition as amended was passed unanimously:—

XVII.—That the Conference is of opinion that the system followed in the Indian Museum of having one day a week reserved for students should be followed also in provincial museums, where a reasonable demand exists. The general public might be admitted on students' days on the payment of a small admission fee, while students are given free tickets, as this would ensure the students not being interrupted in their work by the presence of large numbers of people.

5. **Dr. Vogel** submitted a letter dated 4th January, 1912, from Mr. D. R. Bhandarkar, Assistant Superintendent of Archaeology, Western Circle, Poona. Mr. Bhandarkar brought to the notice of the Conference that the Archaeological Museum, Poona, is shown eighth in the distribution list published in the Government of India Resolution No. 889—903 of 30th March 1907. This is undesirable as the Archaeological Museum, Poona, is the nucleus for the Prince of Wales' Museum, Bombay; and as it is natural that the three Presidency museums should have precedence over others, he thought that the Poona Museum should be placed immediately below the Madras Museum. He also suggested that wherever there is a purely archaeological museum a historical section should be joined to it. The educational value of such a section cannot be denied and it would also serve to make the Museum more popular in the sense that more educated people would visit it and profit by it.

It was resolved that this letter be recorded.

6. **Dr. Pearson** (Colombo) asked for suggestions with regard to charging admission fees in museums. In the case of the Colombo Museum he thought that Europeans who were non-resident in Ceylon might be charged an admission fee.

The general feeling of the Conference was that it is unnecessary to charge admission fees in the case of museums in India.

7. **Pandit Daya Ram Sahni** (Lucknow) enquired of the delegates if they could recommend any Ethnological Museum which would care to accept certain *papier maché* heads illustrating the head-dress of Rajputana which the Provincial Museum at Lucknow did not require. The delegates were unable to furnish the information.

8. A series of photographs illustrating objects in the museums under their charge were exhibited by Dr. Pearson (Colombo) Dr. Annandale (Calcutta) and Mr. Henderson (Madras).

The Honorary Secretary read the Resolutions adopted by the Conference and their wording was carefully considered.

The proceedings terminated with a vote of thanks to the Chairman and the Honorary Secretary, both of whom replied in suitable terms.

The Resolutions passed by the Conference.

The Resolutions passed by the Conference are here printed together for convenience of reference.

All the Resolutions were passed unanimously.

1. That Resolution XXIX of the 1907 Conference shall be reaffirmed with the following addition:—"and that the Standing Committee be elected at every conference, members of the old Committee being eligible for re-election. The Conference does not, however, consider it necessary that the number of members should be fixed."

[Resolution XXIX of the 1907 Conference is as follows:—"That a Standing Committee be appointed to make arrangements regarding future conferences and to advise on museum matters."]

II. That the Standing Committee shall have powers to coopt additional members if they consider it desirable.

III. That the Government of India be asked to recognise the Standing Committee and to provide the funds necessary for its continuation and for the holding of conferences.

IV. That it be an instruction to the Standing Committee in the event of the refusal of Government to accept the last Resolution (No. III) to take any steps to bring about an alteration of this attitude.

V. That sanction be requested from the Government of India to have all printing connected with the work of the Standing Committee carried out at the Central Government Press.

VI. That the Conference considers it desirable that in controversial questions relating to museum administration the Standing Committee should be consulted by the Government of India, the Local Governments, and Officials connected with museums.

VII. That the Conference is of opinion that it is desirable that loan collections of art, archaeological, and industrial exhibits, should be made and circulated, but unless a considerable sum of money is provided for the purpose, and a separate department instituted, any arrangement for the interchange of specimens should be left to individual curators.

VIII. That the Conference approves of the bye-laws of the Indian Museum controlling the loan of biological specimens to specialists in India and abroad and recommends them for adoption to other museums that have in their possession similar specimens.

IX. That the Conference recommends that a chemist with special knowledge of the preservation of antiquities be attached to the archaeological staff of the Indian Museum, Calcutta. It should be his duty to inspect public collections of antiquities in India and to advise museum authorities on questions relating to the preservation of specimens.

X. That the Conference is of opinion that in case a provincial museum possesses duplicates of antiquities, such duplicates should be in the first instance distributed among other museums in India which require such antiquities in connection with their existing collections. The remainder should be presented to the chief museums abroad. The museum authorities concerned will in each case have to decide which museums should be selected for distribution. It should be understood that this resolution excludes ancient coins to which the existing Treasure Trove rules now in force apply.

XI. That the Conference is of opinion that the Indian Museum, Calcutta, should stand in the position of a central museum, to which local and provincial museums in India would refer in questions where expert advice and assistance are required.

XII. That in order to assist the Indian Museum in its various branches of work it is desirable that local museums should give what assistance they can to the officers of the Indian Museum in connection with any research-work in their respective sections.

XIII. That the Conference reaffirms Resolutions XII, XIII, and XIV of the 1907 Conference.

[These resolutions of the 1907 Conference are as follows:—

"XII. The Conference consider it desirable that the publications on art, pure and industrial—made in India should be unified. The publication should take the form of a serial edited and conducted in a way similar to the memoirs of the Geological Survey, Zoological, Botanical and Archaeological departments.

XIII. That the Provincial monographs on Industrial art and Technical art series published by the Survey of India should be absorbed. From the serial extra plates might be easily struck off for the use of schools of art and for other purposes.

XIV. The Conference believe that the present system, by which the Provincial Governments are asked to write monographs on specified subjects, cannot much longer continue, because the subjects common to most of the provinces have now been exhausted and further the Conference believe that the Technical art series find a far more extensive sale among European visitors to India than among the class for whom it was intended. The class to which these visitors belong would be more easily reached by a serial than they are by the present publication, while the artisans should be reached by pattern books through the schools of art. The serial would form the basis from which the designs of the pattern books should be taken.

XIV. That the Conference is of opinion that the subject of the educational value of museums is particularly in India one of great complexity and should not be dismissed by Government without the most careful consideration and consultation.

XV. That the Conference desires to express in the strongest possible manner its conviction that the different branches of provincial museums should be under expert management, and that no exhibition of specimens can have much educational value unless it is arranged and supervised by a man who has made a special study of the class of objects of which it consists.

XVI. That the Conference expresses the hope that a suitable building will be provided before long for the Phayre Museum Collection, Rangoon, now housed in one of the rooms of the Secretariat and that a suitable Curator will be appointed at once to superintend it.

XVII. That the Conference is of opinion that the system followed in the Indian Museum of having one day a week reserved for students should be followed also in provincial museums where a reasonable demand exists. The general public might be admitted on students' days on the payment of a small admission fee while students are given free tickets as this would ensure the students not being interrupted in their work by the presence of large numbers of people.

XVIII. That the Standing Committee be composed of the following members:—

- (1) Dr. N. Annandale.
- (2) Mr. Percy Brown.
- (3) Mr. J. H. Burkill.
- (4) Mr. C. L. Burns.
- (5) Dr. J. R. Henderson.
- (6) Mr. J. H. Marshall.

APPENDIX A.

Note by Mr. Henderson on the preservation of lead coins

Some years ago a considerable number of lead Andhra and other coins in the Madras Museum, stored in closed cabinets, were destroyed by chemical action and although many of the coins had been varnished this precaution proved valueless. Later accession of lead coins have been treated with a thin coating of paraffin according to the following recipe which was furnished by Sir A. H. Church, S. :—four parts paraffin wax (melting point at least 150° or 160° F.), fifteen parts toluol, part spirits of turpentine, to be melted and warmed together, the mixture being stirred while cooling. If toluol is not available four parts of chloroform to one part of paraffin wax may be substituted. A paste or ointment is formed which is smeared over the surface of the coins and then left till the liquid constituent has evaporated. A gentle heat, not exceeding 100° F., may be used to hasten the process. The mixture is suitable for objects of lead, tin, or pewter.

APPENDIX B.

Note by Mr. Henderson on the preservation of insect specimens.

Owing to climatic conditions, the ordinary paper-lined store boxes for insects, as used in Europe and America, are often unsuited to Indian conditions. After a large series of experiments on various forms of store boxes the following method of preparation has been arrived at and has been in use at Pusa in several thousands of store boxes for over four years. A store box (27½ x 12 x 12, outside measurements) strongly made of well seasoned teak is first varnished inside (top, bottom and sides) with a moderately thick coat of oak varnish. A piece of cork linoleum (Edmond's make) is then cut to fit inside the bottom of the box and its upper surface is painted with two coats of white Prismolith enamel. When the enamel is dry, the cork lino is laid in the bottom of the store box, painted side uppermost, and a hot mixture of paraffin wax (80%) and flake naphthaline (20%) is poured into the box to cover the cork to a depth of about a quarter of an inch and allowed to set. The paraffin wax used at Pusa has a melting point of 126° F. and ordinarily this is sufficiently high but in localities, in which the shade temperature exceeds 110° F., wax of a higher melting point might advantageously be employed. About 1½ to 2 pounds weight of the melted mixture is used for each box treated. The advantages of this system are:—(i) that there is a clean white surface with no paper to get discoloured, (ii) there are no cracks which may harbour insect pests, and (iii) if any of those latter do gain admittance the fumes of the naphthaline rapidly kill them off. A disadvantage lies in the increased weight of the boxes, but this is a small point in the case of reference and exhibition collections, neither of which require frequent handling. In the course of time also the naphthaline may be found to evaporate and require renewal, but it is apparently well dissolved in the paraffin wax and its evaporation is a slow process; boxes prepared at Pusa over four years ago have not yet required renewal. The method is of course applicable to the preparation of glass-topped show cases also.

A mixture which has been found useful at Pusa in dealing with mould, mites, etc., in insect collections is composed of:—one pound carbon bisulphide, half a pound flake naphthaline, and half a pound beechwood creosote. The naphthaline is dissolved in the carbon bisulphide and the creosote then added. This mixture is of course inflammable and should not be used in the presence of a naked light.

APPENDIX C.

Note by Mr. Hooper on the volatilisation of naphthaline in Museums.

In the tropics, where insects so readily attack animal and vegetable tissues, the use of a preservative is essential, and the amount of naphthaline and camphor used in museums, wardrobes and warehouses is considerable. At the Conference in regard to museums in India held in Calcutta, December 1907, it was proposed to conduct systematic experiments in the effect of naphthaline in preserving specimens of different kinds from the attack of insects. It is recognised that an atmosphere saturated or partly saturated with a volatile hydrocarbon acts as an insecticide, and is fatal to most forms of low animal life, although it has been said to be useless against mould. The circumstances in which museum specimens are sometimes stored frequently admit of loss of naphthaline by volatilisation. In closed air tight tin boxes or glass bottles this loss is retarded as is seen in the vapour condensing on the cooled surface but closed wooden boxes are incapable of retaining the vapour. In large glass cases which are periodically opened the supply of naphthaline has to be replenished and the rate at which it evaporates or volatilises and the frequency of renewal is one of the first points that requires consideration. The following record of experiments made in this direction may therefore be of interest to keepers of museums whether in the tropics or not.

It may be explained that the composition of camphor is represented by the formula, CH_{16}O , it melts at 175°C and boils at 204° . Naphthaline is a hydrocarbon, $\text{C}_{10}\text{H}_{18}$; it melts at 79° and boils at 218° . Whatever advantages camphor may have over naphthaline in its more pleasing odour, it cannot be used economically when large quantities are required. Camphor is more volatile than naphthaline, while the price of the former is 3s. a pound against 4d. a pound for the latter. In the Industrial Section of the Indian Museum 7 cwts. of naphthaline were used each year, in 1909 and 1910 in preserving specimens in boxes and cases.

Few systematic observations have been published on the loss of these preservatives. With regard to camphor a paper was contributed by J. C. Folger to the "Druggists Circular" for July 1885, on the "Rate of volatilisation of camphor exposed to the air." The author took definite amounts of camphor and exposed them under different conditions of packing, the temperature varying from 16° to 38° . His results prove that the loss on exposure is governed by the solidity of the gum, the amount of surface exposed, and the condition of the atmosphere. The range in percentage of loss was wide, the lowest being 11 and the highest (sus-
lost 14 per cent. at the end of ten weeks, while a small quantity of 60 grains disappeared entirely in nine weeks. In a paper on "The Rapidity of Volatilisation of Camphor" in the "American Druggist" for 1909, Mr. C. H. LaWall shows that camphor in powder is more quickly dissipated in air than when in lumps. With quantities of 2 grammes of the powder exposed to a large size dust-free closet, the loss was found to range from 8.8 per cent. in twenty-four hours to 99.9 per cent. in twenty days.

Experiments on the volatilisation of naphthaline have been carried out in the Industrial Section, Indian Museum, between 1908 and 1911. Balls or marbles were used; definite weights were wrapped in muslin bags placed in a show case ($6' \times 3' \times 1'3''$), and weighed every fortnight, the temperature at the same time being recorded. The weights of two quantities of 50 and 100 grammes, kept under these conditions, are given in the following tables. The weighings of the 50 grammes experiment are given below:—

		C°.	Amount weighed.	Monthly loss.	Daily loss.
1st December 1909	.	25°	50	...	...
1st January 1910	.	23°	45.0	...	...
1st February	.	22°	41.4	5	161
1st March	.	22°	37.2	3.6	116
1st April	.	26°	32.2	4.2	146
2nd May	.	30.5	26.0	5.0	161
1st June	.	31°	18.6	6.2	200
1st July	.	33.5	13.6	7.4	246
2nd August	.	32.5	9.5	5.0	166
1st September	.	31°	6.8	4.1	128
1st October	.	32°	3.7	2.9	96
1st November	.	31°	1.8	2.9	96
1st December	.	28.5	1.8	1.9	61
	.	23°	6	1.2	40

The weighings of the 100 grammes experiment follow:—

		C°.	Amount weighed	Monthly loss.	Daily loss.
1st December 1909	.	25°	100	...	...
1st January 1910	.	23°	92.9	...	...
1st February	.	22°	88.0	7.1	229
1st March	.	22°	81.9	4.9	158
1st April	.	26°	73.4	6.1	218
2nd May	.	30.5	62.6	8.15	274
1st June	.	31°	51.3	10.8	334
1st July	.	33.5	43.0	11.3	376
2nd August	.	32.5	34.9	8.3	276
1st September	.	31°	28.8	8.1	253
1st October	.	32°	23.0	6.1	203
1st November	.	31°	18.4	5.8	193
1st December	.	28.5	15.0	4.6	148
2nd January 1911	.	23°	12.5	3.4	113
1st February	.	22°	10.4	2.5	78
1st March	.	23.5	8.3	2.1	70
1st April	.	26°	5.5	2.1	75
1st May	.	28°	2.5	2.8	90
1st June	.	31.5	3	3.0	100
	.	33°		2.2	70

In the first month the volatilisation in both experiments is rapid, then it continues at a moderate rate which is considerably increased by the rise of temperature in the hot weather, it falls again in the rains and is very low in the cold season. In the second experiment volatilisation increases in the hot weather in spite of the reduced bulk of the naphthaline.

These tests show that naphthaline in quantities of two to four ounces should be renewed each year in the cold weather or early spring so that the cases may be well disinfected during the rains when insect life is most active.

From these experiments the following general conclusions are summarised:—

- 1 Naphthaline evaporates more rapidly in a pure atmosphere, and slower when the air is occupied by the vapours of other odorous substances or moisture.
- 2 Naphthaline is volatile at all ordinary temperatures, and the rate increases as the temperature rises.
- 3 The loss by volatilisation is more rapid as the surface exposed is larger. Two bags of two ounces will be dissipated more quickly than one bag of four ounces; and powdered or broken naphthaline disappears more readily than the same weight in moulded form.

J. R. HENDERSON,
Honorary Secretary.



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