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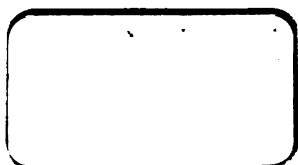
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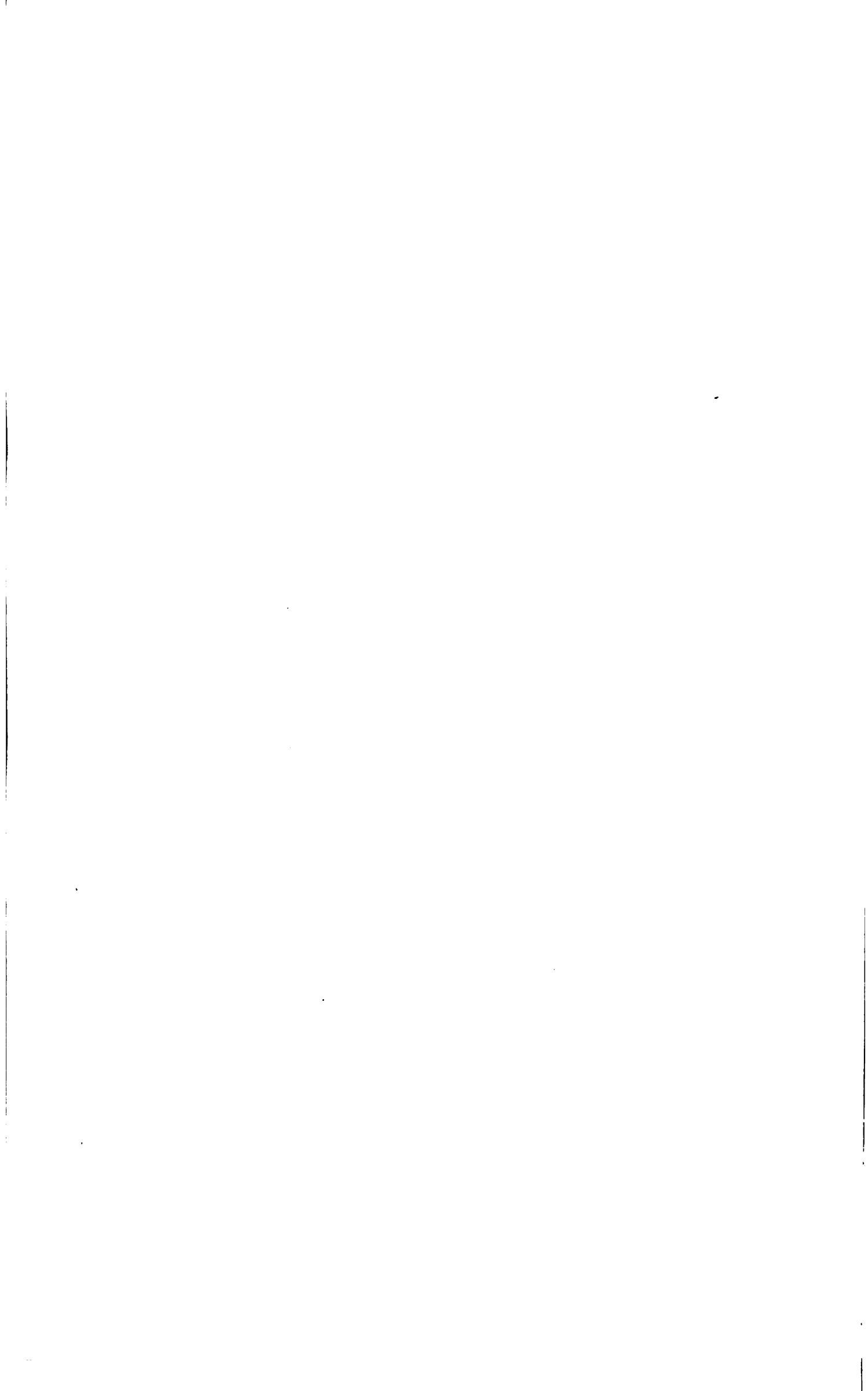
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ON THE
MEASURES REQUIRED FOR THE EFFICIENT WORKING
OF THE
INDIA MUSEUM AND LIBRARY,
WITH
SUGGESTIONS FOR THE FOUNDATION, IN CONNECTION
WITH THEM,
OF AN
INDIAN INSTITUTE
FOR
ENQUIRY, LECTURE, AND TEACHING.

BY

J. FORBES WATSON, M.A., M.D., &c.

REPORTER ON THE PRODUCTS OF INDIA.



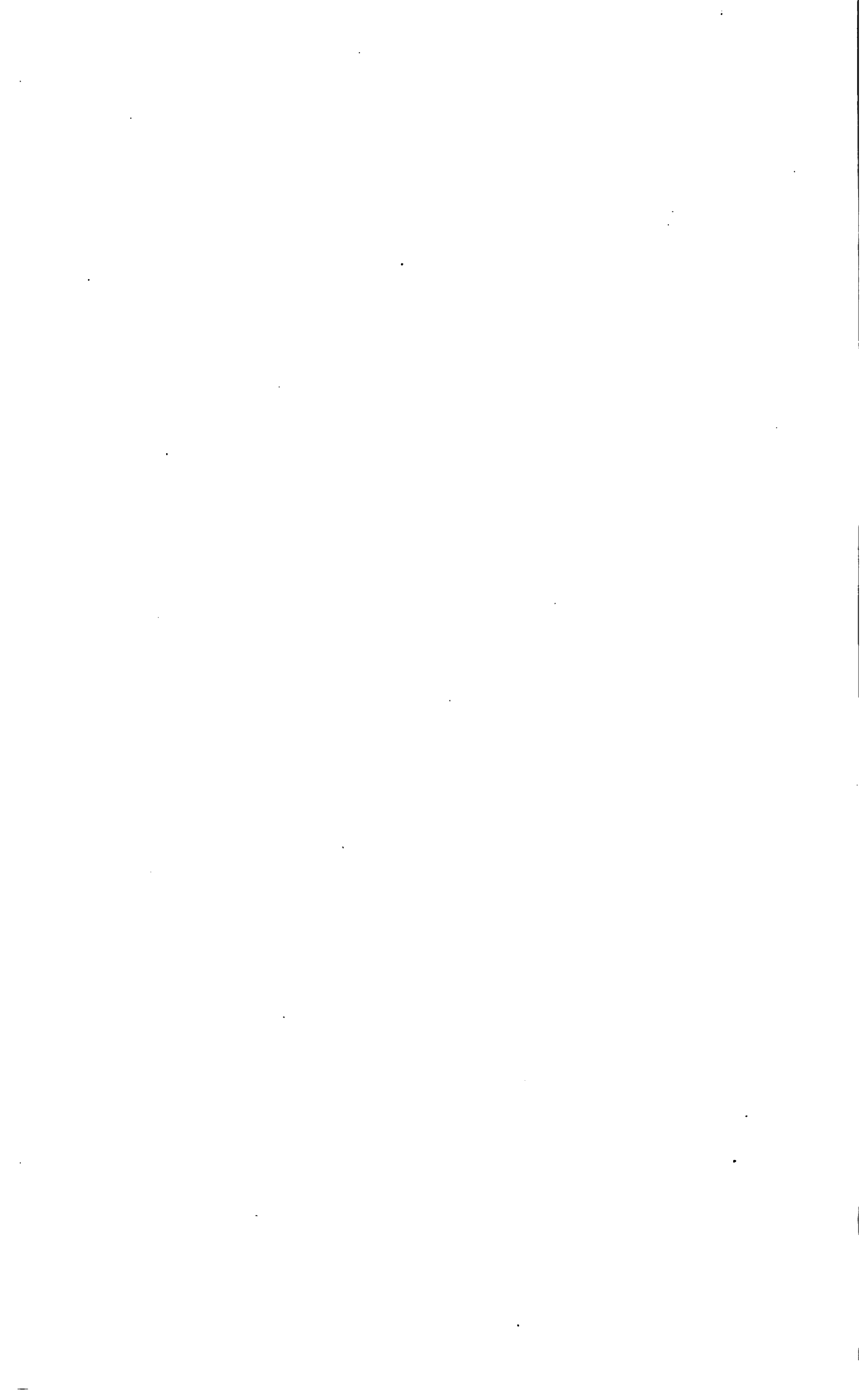
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Part I.

ORGANIZATION AND PROPOSED MEASURES.

Preliminary Remarks.

THE promotion of the literature, arts, and sciences of India by England had its origin in the acquisition of the Province of Bengal. Policy required a knowledge of the laws and institutions of the country: its administration could not be conducted in an efficient manner without geographical knowledge, nor its commerce promoted without a knowledge of its products and their uses. When, under Warren Hastings, the Government of the Company's territories assumed a more regular shape, it was found necessary to make use to a great extent of the agencies left by the previous Governments, and to assimilate, in some measure, the collection of revenue and the administration of justice to the use and wont of the country. This of necessity gave a powerful impulse to the study of its literature, which contained the authoritative exposition of the native organization. The study of Sanskrit, Persian, and Arabic thus assumed an urgent practical importance, and the first Indian statesmen were also the first Indian linguists. Under their auspices the new studies grew rapidly. It suffices to mention the names of Sir William Jones and of Colebrooke to call up the memory of the great achievements in Oriental research then accomplished, of the priceless literary treasures then for the first time disclosed to Europe, and of the surprising influence which all these new discoveries exercised on the stream of European thought. A new epoch in the study of history, archæology, mythology, and of linguistic science began from that date, and since then the collection, investigation, and description of all Indian antiquities have gone on with unflagging zeal, whilst at the same time the exploration of the country in a geographical, scientific, and commercial sense has more than kept pace with the political establishment of England as the paramount power over the whole of the country. The necessity for having some permanent repository in which the rapidly accumulating literary, artistic, commercial, and scientific collections could be preserved and rendered permanently useful was very soon felt. In 1798 the Court of Directors of the Honourable East India Company passed a resolution to devote a portion of their house in Leadenhall Street for the establishment of a Museum, and Mr. (afterwards Sir Charles) Wilkins thereupon submitted a plan for its organization.* In connexion with the Museum, a Library was also founded. This was to include Oriental manuscripts, coins, medals, &c., and such publications on Asiatic subjects as should be deemed useful for reference, including all works and maps published under the auspices of the Company. In 1800 Mr. Wilkins was appointed librarian, and charged with the foundation of the Museum. The Museum began, though slowly, to acquire a character suitable to its purpose. Dr. Horsfield, when its curator, as the successor of Sir Charles Wilkins, commenced the formation of the Natural History Collection, but the commercial representation of the productions of India in the Museum dates mainly from the Great Exhibition of 1851. A considerable

* Appendix B., p. 55, gives the minute by Mr. (afterwards Sir Charles) Wilkins, submitted to the Court of Directors on this subject in 1799.

proportion of the articles then sent from India were available for this purpose, and formed under the skilled hands of Dr. Forbes Royle the Industrial Section of the Museum as it existed at the old East India House. Further steps in the same direction, by initiating a systematic use of the Museum as an instrument for the promotion of the commercial relations between England and India, have been taken under the present Director of the Museum, the Reporter on the Products of India. On the breaking up of the East India Company, both the Museum and Library were in 1860 removed from Leadenhall Street, and temporarily accommodated,—the former in Fife House, and the latter in the offices of the late Board of Control in Cannon Row. Since 1869 both have been transferred to their present position in the new India Office. The collections which had accumulated from that time up to the period of the abolition of the Company in 1857 formed an admirable representation of the condition and past history of India. The Library, as regards its manuscript collections, stands foremost amongst all oriental collections; and the various Museum collections exhibited an admirable *epitome* of India,—illustrating the topography and history of the country; its people and their customs, manners, trades, and religions; its antiquities, agriculture, manufactures, mineral resources, and natural history.

Since the removal from the old East India House, however, the condition of the Museum and Library collections has ever been unsatisfactory. The arrangements made for them had from the first the character of a makeshift, while the scantiness and inconvenience of the existing accommodation have in every way acted injuriously.

In the first place, not only has the growth of the collections been checked, but their preservation even has been endangered. The collections are to a considerable extent the result of private donations. Many of them, thus obtained, it has been impossible to exhibit from insufficiency of space, and it has been necessary simply to store them. It is evident that the neglect thus shown to the fruits of long labours must often have been resented by the donors, and that this has discouraged many persons who otherwise would have taken a pride in helping to render the Museum in every way a complete representation of India. But not only have the collections not increased as they should have done,—they have to a certain extent deteriorated in value.

Besides, it is obvious that the usefulness of a collection is not to be measured solely by the number of its specimens, that is, by its mere materials. It depends greatly upon the manner in which these resources are applied for the furtherance of the purposes of the institution; and upon the facilities given to scientific investigators and to the general public for making use of the accumulated materials for research and information; but the same causes which arrested the growth of the collections have also prevented their systematic utilization. The preparation of natural history catalogues—of the greatest use to the scientific world—had to be discontinued. Even with regard to such portions of the collections as were actually exhibited, the temporary nature of the arrangements, and the cramped and unsuitable space, have prevented the carrying out of any systematic classification, or the preparation of catalogues possessing a permanent value. The Library in certain respects is in even a worse position than the Museum. Like the Museum it is situated in the attics of a high building, badly ventilated, and exposed to excessive heat, dust, and soot, and every bit of space available for extensions has been all but filled up. Under existing conditions it is impossible to carry out a subject-matter arrangement, a point of vital importance for the proper utilization of the literary treasures contained in it.

Thus it has come to pass that the collections which Government held in trust for the fulfilment of a public purpose have been virtually placed under conditions in which this purpose either could not be carried out at all, or only could be carried out with a small amount of efficiency. Instead of keeping up a living institution, actively promoting the ends indicated by its founders, continuing its traditions, and answering the expectations of the public, little could be done beyond keeping the collections intact until some future opportunity would allow of a development of their latent capabilities. The repeated representations of the Asiatic and Zoological Societies, and of many individual investigators, foreign as well as English, who have been debarred from consulting collections which, though

known to exist, were inaccessible, prove the injurious effect of this state of matters in so far as they attest the disappointment of those already acquainted with the value of the information which has thus been practically withheld. The more important effect on the general public, who are virtually shut out from the only popular source of information on Indian subjects which is accessible in this country, is not one which manifests itself in complaints, but which may nevertheless be traced in the prevailing ignorance of and want of interest in many Indian questions,—an ignorance and want of interest which a well-organized museum and library might have gone far to remove.

It must be remarked that this interruption in the activity of the Museum happened at a period when museums everywhere were entering upon a wider sphere of action; and when, instead of being institutions specially devoted to scientific investigation and the promotion of research, they had begun to be made use of as instruments for directly influencing the practical life of nations by spreading information on current economic, domestic, or social questions. The new direction given to the activity of museums was traced out for them by exhibitions. This practical tendency is becoming more and more apparent, and the opinion gains ground that many of the objects which were originally aimed at by exhibitions may be much better attained by more permanent and more systematically conducted institutions such as museums.

It is a tendency moreover which is entirely in accordance with the current of modern thought and practice throughout the whole field of its relations with external nature, and which is as perceptible in the case of research and discovery, as it is in the mode of imparting information to the public at large.

The characteristic of the modern methods in all these respects is to increase the direct contact with nature, and to develop the power of personal observation and the art of drawing correct inferences from the observed facts,—to acquire, in short, the power of using facts instead of cultivating a mere aptitude for receiving the impressions and ideas of others.

This method, which is the foundation of the whole of the natural sciences, and which has long guided all scientific investigations, has been extended to other fields. In general literature—scientific, historic, or artistic,—the same increased perception of, and desire for, reality becomes apparent. Proof of this is afforded not only by the extended use of pictorial and graphic illustration, but even by a marked change in the very style of literary composition. Thus in historical writing, the extraordinary development of biographical analysis and of descriptive power offers a substitute for reality by presenting its image re-constructed by imagination. The same spirit has vivified the whole system of education, and to its influence must be attributed the more and more extended use of “object-lessons” in primary education, and of laboratories and museums in the higher education.

It seems natural that the same method which already tends to prevail in education, *i.e.*, in the training and instruction of those preparing for practical life, should also be applied for communicating information to those who have already entered upon practical life, that is, to the active classes of the community.

At present, literature is the almost exclusive vehicle for this purpose, though the insufficiency of the merely literary method with regard to most of the objects on which popular information bears is recognised. It is here that museums step in, and by placing the example at the side of the explanation facilitate the acquirement of the instruction conveyed by both. It is the most telling manner in which information can be conveyed both to the popular and to the trained mind, imparting to knowledge that precision and vividness which no mere description can give. This is the direction already entered on by artistic and technical museums, intended to demonstrate, and make available to the public at large, applied art and applied science. The usefulness of such a course is apparent as regards commercial, economic, or any other questions of general interest, supplying to the discussion a firm basis in the shape of an actual representation of the subject

involved in it. Some of the existing museums, as well as some of the past exhibitions, afford good indications of the proper methods to be used for all these purposes. Distinctly traceable and practically tangible results can thus be achieved through the instrumentality of museums, apart from their influence on general culture. A wide field of future progress lies before them, and rich and manifold results may be expected from increased efforts in this direction.

Throughout the management of the India Museum, the constantly expanding ideas as to the functions of museums in general, and as to their mode of action, have never been lost sight of; and advantage has been taken of every opportunity of making the resources of the Museum bear on issues of practical importance to India and to England, as far as it was possible to do so under the very unfavourable conditions before referred to. The arrangement of the economical collections already effected at the Museum; the special and loan collections; and the lectures from time to time delivered, are examples of actual work in this direction. But the straitened space, and the straitened means in every way, which precluded the execution of any comprehensive scheme, are reasons why the work accomplished by the Museum should not be measured merely by the results which have thus far become apparent. The activity of the Museum since its removal from the old East India House has been to a great extent prospective, that is, tending towards the preparation of future means of action by maturing plans and elaborating methods for the better utilization of the collections, so as to be ready to put these plans into practice the moment the favourable opportunity arrived.

One important conclusion was arrived at during these preparatory studies, namely, that the majority of the conductors of museums are but imperfectly aware of the extraordinary power and wide applicability of the instrument placed in their hands. By tracing the principles of arrangement and the methods of action which have already led to the success of existing institutions, by supplementing these with suggestions derived from exhibitions or from other sources of information, and by combining the various suggestions and methods already practically tested, into one comprehensive scheme, an efficiency scarcely yet realized may be attained in the accomplishment of the various purposes of a museum, and this to a great extent merely by the proper handling of existing resources.

Principles.

Before attempting to describe the features of such a scheme, as applied to the proposed India Museum, it may be useful to give here an example of one kind of operation which might be very advantageously extended to almost all classes of objects. This example is afforded by the scheme sanctioned by the Secretary of State in Council, and to a great extent already carried out, for the extension of a knowledge of the textile manufactures of India.

This scheme consists in the preparation and distribution in this country and in India of identical sets of trade collections, embracing, in the shape of actual specimens or of fac-simile illustrations, the whole range of the Indian textile fabrics, arranged according to their special uses and their mode of manufacture. The number of specimens contained in each of the sets already issued amounts to 700, and in the sets under preparation, and of which a considerable portion has already been distributed, to upwards of 1,400, for which a sum amounting to nearly 3,000*l.* has been subscribed by the chief seats of commerce in this country. Full information about each of the classes into which the collection is divided is supplied by the work on the "Textile Manufactures and Costumes of the People of India," which was issued some years ago, and which thus stands in the place of a catalogue *raisonné*.

The advantages of the plan followed in the preparation of these textile collections are very great. This plan is applicable to almost all classes of collections, and it has been made the basis of the proposals, now before Government, for the

organization of trade museums throughout India. Its essence consists (1) in the preparation of standard collections, illustrating some special point, and composed of well-selected typical specimens, systematically arranged and fully described, and (2) in the mechanical reproduction and multiplication of the collections so prepared. The effect of such a system on the practical influence of museums is similar to that produced by printing upon the usefulness of a manuscript. As many copies can be struck off as there are places in need of information, and thus the effort which produces the standard collection is rendered useful to the country at large, so that the influence of museums ceases to be local and becomes national.

This one example is sufficient to show, that in attempting to realize the probable effects which a well-organized India Museum may be expected to produce, there lies at the root of the question a conception of the functions of a museum which differs from that commonly entertained and acted on. This conception consists in considering the Museum not as a *mere store* of various more or less interesting or curious specimens, from which casual visitors, or even students are left to extract what information they may, but as a *machine* specially designed for the accomplishment of certain well-defined objects. It may be asserted that from the want of a clear insight into their purpose and possible uses, collections which might be made to illustrate questions of practical and scientific importance, remain mere assemblages of specimens, unconnected by any thread of purpose or meaning, and of little use to anyone but a few specialists who possess the knowledge and the time requisite for utilizing them.

Special fitness for special ends is the characteristic of every properly designed mechanism. Therefore, in organizing a museum, it is necessary to anticipate clearly and to take separately into account the various forms of usefulness which it can exercise, the various classes of people who will appeal to it for information, the special character of the information which will meet the wants of each class, and the mode of arrangement which will render that information most readily intelligible. Thus, although the general purpose of the Museum will remain the same throughout the whole field of its influence, special measures must be adopted to further each special object, and the efficiency of the institution as a whole will only be the sum of the special effects thus produced. The general purpose of an India Museum is apparent,—it is to supply accurate information with regard to all the features of India capable of being illustrated by its contents. In order to accomplish this function with efficiency—that is, in order to supply the maximum amount of information to the largest number of people in the shape most convenient for them—certain principles must be kept in view, which are indispensable conditions of success, and which might be called obvious if they were not too frequently ignored.

(a.) SEPARATE REPRESENTATION OF THE DIFFERENT FEATURES OF THE COUNTRY.

The first requirement of a museum arranged with a view to efficiency is *specialization of its contents*. The key to the kind of specialization required is afforded by the reflection that all the information supplied by a museum is more or less akin to direct personal experience. A museum, indeed, is intended in some measure to supply the place of personal observation or experience by exhibiting in a small compass the same material sources of information which may be gathered with trouble in the country itself. Now it is obvious that if a merchant, a manufacturer, a scientific man, or an artist visit a country, each will look on it from a different point of view, and direct his attention to different objects, or if two or all of them are attracted by the same object, it will be as a rule by a different quality of it. The merchant will have the interests of commerce in view, and will study articles which, in the condition in which he can obtain them, are capable of immediate use, and have attained or may attain a place in the market of the world, and he will also study the various material wants and habits of the people which are a guide to him regarding the articles he can dispose of in the country. The manufacturer will

with preference direct his attention to articles or products which, in order to fit them for use, require some further manipulation or transformation, and he will note the concurrence of the natural and economic conditions favourable for production. The scientific man, again, will be interested in all articles, useful or not, if they illustrate some natural order or species, or exemplify the working of some natural law; and the artist will be attracted by all objects natural or artificial, provided they suggest some artistic combination of form or colour, or illustrate some style of art or some original mode of its practical application. In the same manner, different features of the country and of the people will attract the attention of the statesman, the agriculturist, the engineer, the medical man, or the historian. As the general public which may be expected to resort to the Museum for information consists of such various classes of individuals, each having a special purpose in view, the usefulness of the Museum will depend on its success in presenting to each visitor the kind of articles and the kind of information which he himself would have sought out if he had had the opportunity of investigating the country itself. In none of the exhibitions which have taken place, nor in any of the existing museums, has this principle been systematically acted on, although it is one which would facilitate to an extraordinary extent the utilization of collections for practical purposes. The system here advocated leads to the division of the collections into groups, each illustrating the country from a special point of view, and each being as nearly as possible a complete picture without reference to other groups. It is in fact doing, once for all, the work which every visitor resorting to a museum for a special purpose has to perform for himself, but at such an expense of time and research as few can afford.

This specialization of the collections makes them not only readily available for reference, but it also presents the most philosophic view of the country. Part III., p. 31, contains the details of the classification which will meet most of the requirements here alluded to. The leading idea in this classification is to separate the picture of the country from the picture of the people according to the following scheme:—

A. THE COUNTRY AND ITS RESOURCES.

1. PHYSICAL FEATURES.

- a. *Boundaries and administrative divisions.*
- b. *Orography.*
- c. *Hydrography.*
- d. *Meteorology.*

2. NATURAL FEATURES AND PRODUCTS.

- a. *Geology and Mineralogy.*
- b. *Soil.*
- c. *Flora.*
- d. *Fauna.*

3. ECONOMIC VIEW.

- a. *Raw produce, mining, agriculture, forestry, &c.*
- b. *Manufactures.*
- c. *Tools, machinery, processes.*
- d. *Locomotion by land and water.*
- e. *Harbours, lighthouses, docks, warehouses, fairs and markets.*
- f. *Currency, banks, &c.*
- g. *Coins, weights, and measures.*

B. THE PEOPLE AND THEIR MORAL AND MATERIAL CONDITION.

4. ETHNOLOGICAL VIEW.

- a. *Races.*
- b. *Castes and religious sects.*
- c. *Population and vital statistics.*

5. DOMESTIC AND SOCIAL ECONOMY.

- a. *Food and cooking.*
- b. *Houses and buildings.*
- c. *Clothing and personal decoration.*
- d. *Manners and customs.*
- e. *Health and sanitation.*
- f. *Education.*
- g. *Religion.*
- h. *Fine and decorative art.*
- i. *Science and literature.*

6. HISTORICAL AND ADMINISTRATIVE VIEW.

- a. *Philology.*
- b. *Archæology.*
- c. *Mythology.*
- d. *Historical geography.*
- e. *Political and administrative history.*
- f. *Current administration.*

The main divisions are thus subdivided into smaller groups of subjects, many of them requiring separate representation. Thus, for instance, the second group which gives the Natural Features of India is subdivided into sections referring separately to the Geology and Mineralogy, to the Soil, to the Flora, and to the Fauna. The economic view, again, will be subdivided according as the information bears more particularly on Production or on Commerce. Production must take special account of each of the separate industries, agricultural, mining, and manufacturing, whilst Commerce, being universal in its operations, embraces in one view all the marketable products and the means of their distribution. Similar subdivisions it will be seen occur in the other groups, all guided by the same principle of special usefulness to special classes of individuals.

(b.) THE SPECIAL ARRANGEMENT OF EACH GROUP.

The second principle which must be kept in view is a corollary from the first. The specialization applies not only to the selection of the articles, but also to their arrangement. Each group will require its own *special method of arrangement*, derived from the leading idea which it is intended to represent, bringing out all the characteristic features in their most natural connexion, or in that connexion which is most familiar, and which approaches most nearly to the daily experience and the mental associations of the class for whose benefit the group is designed. The point here touched upon is one of vital importance, but it is even less attended to, and its advantages less recognised than are those resulting from the simple specialization of the collections. Most of the advantages of specialization, however, may be lost, if the collection is classified and arranged according to some inappropriate or merely empirical method.

A well-arranged museum should be articulate, should speak a language of its own, using for the purpose objects or their images instead of verbal designations, but always leading to obvious conclusions.

In like manner as the letters of the alphabet, if differently arranged, produce different words, or as the same words, if combined in a different order, express a different meaning, so the same set of specimens may be used for illustrating different features of the country, that is, the succession of the specimens will impart a view which will differ according to the variation in the principle of arrangement.

A good example of the influence of arrangement on the significance of each single specimen may be given by comparing the *commercial* and the *manufacturing* view, embraced in group 3, with the view of *domestic economy*, embraced in group 5. A considerable number of articles will recur in every one of the three views, but in each a different phase in the life of the article will be illustrated—the mode of growth or production in the first, its commercial distribution in the second, and the manner of its consumption in the third. In each the article will appear in a different connexion with other articles. The leading idea of the first view is *production*,—the article therefore will be associated with all other articles produced in the same manner, with the tools, appliances, and machinery illustrating the process of production, with specimens showing the successive stages of growth or manufacture, and with other objects showing the range of the raw materials, the concurrence of which is in some way or other required for the production of the article. In the commercial view *market value* is the leading idea. The Indian article will be shown in connexion with other articles embraced in the same trade classification, with specimens showing all its varieties recognised in the markets of the world, with others illustrating the mode of its commercial valuation, as well as with articles of the same kind produced in other countries and competing with it. In the domestic view, *function* is the leading idea. The article will, therefore, be classed with others put to some domestic use, and will be accompanied by specimens or illustrations showing the manner in which it is used and the purposes it fulfils. It will also be desirable in many cases to exhibit the article amid its usual domestic surroundings.

It is obvious that in this manner the first series will contain the whole story of the article as far as it interests the manufacturer or the agriculturist, the second as far as it interests the merchant, and the last as far as it interests the consumer, and that in each case the significance will not be obscure, or apparent only to a mind already possessed of information, but will be rendered obvious to all by the mode of exhibition, and the connexion with the other articles which are associated with it.

An article contained in any one or all of the above series may also find its place in the group referring to Natural Features and Products, which, having a strictly scientific arrangement, takes no account of utility or commercial value, but shows the position of the article as a natural species, and exhibits the characteristics which determine its place in a natural order or class. The group referring to Applied Art will be chiefly made up of articles also belonging to the manufacturing or the domestic series, an artistic method of arrangement being adopted, —similarity of style or of artistic function being the connecting idea.

Thus a specific meaning will always be attached to the article in accordance with the leading idea of the group in which it appears, to the expression of which meaning every other consideration is subordinated. Collections arranged in an empirical manner, that is alphabetically, chronologically, territorially, or even according to some general classification not diversified to suit special modes of usefulness, can serve only for reference to individual articles. Whereas specialised collections, arranged so as to represent some particular aspect of the country, realize what has been before mentioned as a desideratum, namely, the application of the resources of the Museum to definite practical purposes. In fact, a rational arrangement of any group cannot be attempted without a clear apprehension of a practical purpose in exhibiting the group.

The nature of the influence which a particular museum will exercise is thus dependent on the direction given to its activity,—on the selection of objects for the furtherance of which it has been rendered specially appropriate. Therefore if the collections of the India Museum are to be rendered useful to India, the representation of practical issues bearing on current Indian economic, social, or domestic questions must be specially aimed at; and very little influence in this direction could be expected if the collections were merely utilized to illustrate abstract science, or comparative art.

A consequence which deserves mentioning is the living and progressive character of a museum organized in this manner. The progressiveness will appear even in reference to those collections which will represent features of the country possessing a more or less permanent interest, since the mode of arrangement will have to be constantly improved as our knowledge of the country increases, and our ideas with regard to the utilization of its resources expand. But independently of this, new questions of economic, social, or historic importance may arise, and the Museum, faithful to its mission of assisting in the solution of current questions, will have to use its resources for the purpose of special representation of such new problems.

(c.) THE IMPORTANCE OF SUPPLYING FULL INFORMATION WITH THE SPECIMENS.

A third condition of efficiency is that the Museum should show not merely the materials from which information can be derived but results. Collections specially selected and specially arranged, with reference to a special object, will go far in giving a direct representation of results, *i.e.*, of conclusions apparent without further inquiry or study. With regard to important branches of information, however, actual representation is impossible, and the actual articles must be supplemented by literary and statistical information, as also by pictorial or graphical illustration. This is the only way of bringing out the full significance of the collections, as the general public can never be expected to perform the work of inquirers. Besides, it is a true economy of force to render available to the public the results of past investigations. With regard to the knowledge of India, we have not so much to complain of any absolute want of information, as of the fact that its possession is restricted to a remarkably small number of persons, and that the sources from which information may be derived are exceedingly scattered, voluminous, and difficult of access, rendering any attempt to collect it almost hopeless on the part of a private individual. The Department of the Reporter on the Products of India has to a certain extent the mission of bringing to the notice of the practical classes, both of this country and of India, the information already available with regard to commercial products. The materials collected in the department occupy several thousand record-boxes, but the limited staff of the department has precluded any attempt at elaborating the information for the whole range of products on a systematic plan. Such a course

would, however, vastly increase the usefulness of the department, and would materially diminish the work now imposed on it. The greatest portion of the inquiries addressed to the Reporter are of a nature which a well-arranged museum, exhibiting a condensed view of all the results referring to each product, would render unnecessary. In fact, one of the strongest arguments for such a connexion of the literary information with that afforded by the specimens is the frequency with which similar inquiries recur, each of which must now be answered separately.

(d.) PREPARATION AND REPRODUCTION OF TYPICAL COLLECTIONS.

In attempting to realize the amount of practical influence which a museum arranged on the foregoing principles may exert, two conclusions force themselves upon the mind. The first is that, after all, its influence will be limited to the comparatively small number of people who can personally visit and study it,—that it will to a great extent not be exercised on the country at large but on the fraction of the population which will be able to visit it in London. It may consequently be said that were the Museum ever so perfect some most important classes deeply concerned in India would find it practically inaccessible. For instance, as regards commercial interest in India, it cannot be doubted that places like Manchester, Bradford, and Glasgow may be quite as important or more so than London. If the Museum is capable of exercising a useful influence, why should its action be limited to a fraction of the community, and not extended to the country at large? The other conclusion is, that such a collection as the present India Museum presents, or rather would present, if all its resources could be displayed and developed, contains too great a multiplicity of objects to impart at first sight a clear notion of the leading features of India, except to those who have full time to study it. The picture is too large to be surveyed at once. For certain practical purposes a very much smaller collection, consisting of well-selected typical and strongly characteristic specimens fully described and illustrated, might be found in many respects more efficient. The difference is the same as that between information shut up in big folio volumes necessarily confined to large libraries, and that conveyed through the medium of current literature.

The example already referred to of the textile collections, of which exactly similar sets have already been distributed to the chief seats of commerce in this country, gives a practical instance in which the two difficulties mentioned in this paragraph have been overcome. By preparing systematically arranged standard typical collections referring to special subjects, and clearly indicating the leading ideas of the subject to which they refer, and by a mechanical reproduction of these standard collections means are afforded of making the information accessible to all classes throughout the country. The preparation of typical collections and their reproduction is thus the process by means of which the theoretical advantages of museums can become realities—tangible facts of national importance, in vital connexion with the progress of general culture and of material development.

It must not, however, be inferred that the usefulness of the original collections of the Museum will be exhausted with the preparation of typical collections, and that all the information which the Museum is capable of affording would be embraced within their compass. The India Museum, from its systematic completeness and rich stores of information, will always remain the place for final reference, and will afford an inexhaustible field for new investigations, for the working up and the digestion of crude material, and for its elaboration into the clear and methodic shape in which it is capable of being made accessible to the public. It will contain the original documents, as it were, of the inquiry, and remain the workshop in which new results will be constantly produced,—the typical collections will exhibit only its final conclusions, and bring them into circulation; and thus the Museum will be more especially an institution for increasing our knowledge of India, whilst the typical collections will be the means of increasing the number of people who will possess that knowledge. Thus the function of the Museum as a store of information, as a source of official reference, and as a scientific institution promoting original inquiry with regard to India, is inde-

pendent of the typical collections; but the latter will extend the area of its influence, from the scientific and literary class, to the whole commercial and manufacturing community, and to the public at large.

The plans for the practical execution of the typical collections, and their multiplications, are the slow results of the thoughts, observations, and experiments of many years. The only instance of the plans in actual operation are the textile collections already mentioned. But everything is ready for immediate action with regard to other classes of articles. The plans for the establishment of trade museums in India and in this country, embracing the whole series of products in which the two countries are commercially interested, are already prepared down to the smallest details, and most of the appliances for compact exhibition intended for their use have already to a certain extent been practically tested in the Museum, whilst the photo-lithographic branch of the department at Peckham is specially adapted for the furtherance of certain sections of the class of work here referred to. Appendix A., p. 47, describes fully the nature of the proposed trade museums, so that it is unnecessary to enter here upon any lengthened description of them. One feature, however, which may turn out to be of considerable practical importance, deserves to be specially mentioned. It is the advantage arising from having absolutely identical sets of specimens accessible in different places of commercial intercourse through the facility of reference which this affords,—the number of the specimen in the collection sufficing to mark at once the exact article to which reference is made. In this manner trade museums become practical standards on which commercial transactions or manufacturing orders can be based. The idea of typical collections is also applicable to many other classes of objects outside the commercial products and the manufactures. Sufficient practical illustration of the subject will be afforded by mentioning some collections, which have already engaged the attention of the department, and for which materials have already in part been collected.

Thus an artistic collection, being, as it were, a Grammar of Indian Design, would be one of wide interest, as also of practical use. It would embrace the various kinds of design, geometric, conventionalised, and naturalistic, and the various modes of surface decoration as produced by the combination of different materials, or by texture, or by linear ornamentation, or by the use of contrasts of colour. Photography and chromo-lithography would be largely resorted to, although a small collection of actual articles would also be required for the more tangible illustration of the influence of the material on the style adopted for its ornamentation.

Another collection which might be easily prepared is an ethnological collection. The photographs contained in the work, "The People of India," show a certain amount of the materials available for the purpose. The talent of the natives in producing clay figures and statuettes renders an illustration by actual models very easy. All this, however, refers more to the popular and picturesque aspect of ethnology. The materials for a scientific basis by an exact measurement of the anatomical elements of the body and of the cranium are as yet utterly insufficient.

An excellent example of an architectural collection was seen in the series of photographs exhibited at the Vienna Exhibition, arranged and catalogued by Mr. James Fergusson. This collection, extended in some respects, and accompanied by a more detailed description and technical explanation, would be all that could be desired under this head.

Another collection of great interest would be a mythological collection founded upon the one in the India Museum, containing the typical representatives of the Hindu pantheon, and of the legendary heroes of India. The late Professor Goldstücker devoted considerable time to the identification and arrangement of the mythological specimens of the India Museum with the view to their reproduction at the photo-lithographic branch of the department, but his death interrupted the execution of this scheme. Such a mythological collection, treated scientifically, might be very usefully supplemented by adding to it a selection from the common

bazaar pictures referring to the same subjects, and in great popular demand throughout India. A very interesting collection of 80 such native pictures from Bengal was sent to the London Exhibition of 1871. Such a collection, with an account of the tales now handed down from mouth to mouth amongst the people about the subjects of the picture, would be a valuable and striking counterpart to the more archæological and erudite collection above mentioned.

Ample materials are likewise available for the preparation of a typical collection of Indian arms. The Hon. W. Egerton has for a considerable time been engaged in preparing a catalogue *raisonné* of the arms in the India Museum which would afford an excellent guide in the preparation of such a collection as that here in view.

These instances of the applicability of the scheme of typical collections might be indefinitely multiplied, but enough has been shown to prove that it is equally effectual with regard to practical commercial subjects, and with regard to those of a more general interest, and that it affords efficient means for disseminating the knowledge of India and of her people in all their aspects throughout the country.

Proposed Scheme of Organization.

Part III. contains various details with regard to an India Museum organised on the principles explained in the preceding pages, and refers in succession to the special arrangements required for making the Museum efficient in the fulfilment of its threefold function—(1) the promotion of original investigation; (2) the systematic representation of results; and (3) the diffusion of information.

The following are the conclusions resulting from the detailed exposition of all the facts bearing on the subject, as regards the conditions necessary for the carrying out of this programme:—

- (a.) That the first condition is the erection of a suitable building, which would afford sufficient space for the display of the collections, and for the carrying out of all the other operations, such as the preparation of the typical collections, &c.
- (b.) That it is necessary to maintain the connexion between the India Museum and the India Library. From the details given in Part III. it appears that on almost every subject the resources of the Museum require to be supplemented by the resources of the Library, as also that the Museum collections frequently afford very useful illustrations of the subjects to which the books in the Library refer. For instance, no mere collection of specimens can of itself present a full economic view of the country, unless light be thrown on it by the current and past literature referring to it. It is equally clear that the literary materials alone would afford defective information without the specimens, models, and drawings contained in the Museum.

The advantages of a connexion between the Museum and Library apply even to a field of so distinctly a literary character as historical investigation. The mythological, architectural, archæological, and ethnological collections afford in many instances materials for valuable conclusions when the literary sources of information are either non-existent or defective.

The very scheme according to which the collections should be arranged, pre-supposes the union of the Museum and Library, since the information directly attached to the specimens can be only of the most condensed description, whilst literary references will be given to the books, MSS., or records of the literary collections containing the full particulars, so that if the Museum and the Library are to become a living institution, frequently consulted and actively used, the students will be under constant necessity of referring to the resources of both.

By uniting the two collections, we form an institution containing a full representation of every feature of India's present condition or past history, affording complete means of research on every Indian subject, and capable of exercising a much greater influence than the two could exercise if separated from each other. These reasons would be sufficient to prove the necessity of maintaining the Library in connexion with the Museum even if the condition of the Library were satisfactory at the present moment. But, as already explained, this is far from being the case. The space now occupied by the Library is as inconvenient and as straitened as that of the Museum, and equally precludes the full utilization of its collections.

(c.) That in making provision for the Library and the Museum, it is advisable at the same time to provide for the Asiatic Society, which now receives a yearly subsidy of two hundred guineas towards the rent of its present rooms. Since the dying out of the strong and personal, though perhaps narrow and sectional, interest which attached to India in the old Company's days, the consideration of Indian questions is too dependent upon passing popular sentiment not to render it desirable to foster a society most of the members of which are personally interested in India, a society too which is one of the few channels through which correct notions on India are propagated in this country. A similar course has been followed in the case of the Imperial Museum at Calcutta, and the advantages of such a course are clear. Not only will the Library and the Museum collections be strengthened by the presence within the same building of the Asiatic Society and its collections, but the activity of the institution as a whole, both as regards the promotion of original investigation, and the dissemination of information, will be materially assisted by such a combination.

(d.) That such a union of the Library, the Museum, and the Asiatic Society would lend itself readily to further developments. There is no measure which would so much contribute to the extension of their influence as the establishment of an *Institute* with endowments of chairs for lecture and enquiry. There is every reason to hope that such an Institute would enlist a considerable amount of private support, that endowments would be forthcoming, and that many persons both in this country and in India would contribute to such an object. Dr. Birdwood's experience during his brilliant career in Bombay shows to what an extent the wealthy natives of India are willing to promote similar undertakings.

The endowment of such chairs would give a powerful impetus to inquiry, and courses of lectures on Indian subjects would give a living interest to the Museum and Library and contribute in an eminent degree to keep alive the interest in India, and to cultivate amongst the people of England the appreciation of Indian art and literature. But the effects of the Institute would not be limited to England, they would be even more felt in India. A system of high education for the natives of India has now been in operation for nearly 20 years. Its influence has been very wide—but it will be admitted that the effects have not fulfilled the original expectations, although there are brilliant exceptions. Hitherto the effects have been rather negative than positive,—leading more to a development of the critical spirit—to the breaking down of old ties and superstitions—than to the growth of a cultivated class with new aspirations, and a more elevated standard of practical life. There are many things which account for the turn which education has taken in India. One of the chief of these, however, is that real culture,—that is, the direction of the whole mental and moral forces towards the accomplishment of elevated aims, whether they apply to practical or to intellectual life,—is the effect rather of an unconscious propagation, by means of personal contact and example, than of mere teaching and examination. Accordingly in all ages and in all countries, travel and personal sojourn in the seats of old civilization have been the chief means by which a germ of real culture has been implanted in a backward country. The number of natives of India who come to England for the purposes of education is already considerable, though pro-

bably below the number coming from another oriental country—Japan, and whatever development high education may receive in India itself, that number is sure to increase, and it is most desirable that it should increase. An institution of the character here described might contribute to this movement, and become the centre of efforts in its direction. It would moreover afford an opportunity for a better training in Indian subjects of the candidates for the Indian Civil Service, and for the special instruction of others whose duties in India require a special knowledge of the country and its products.

It is unnecessary here to do more than indicate the function of such an institute. Should, however, the proposals in this paper be adopted, the details connected with its organization and working will be submitted.

(e.) That distinct advantages would result from the maintenance of the official connexion between the Museum and the India Office. The considerations which bear on this point are as follows :—

- (1.) The importance of maintaining the connexion between the Museum and the Library.
- (2.) The importance of directing the resources of the Museum towards subjects of practical importance to India. The direct utility to India would be very much diminished if the collections were made to contribute merely to the exposition of universal science or to the illustration of comparative art, instead of to specific Indian questions.
- (3.) The necessity for retaining the connexion between the economic section of the Museum and the Department of the Reporter on the Products of India, to which it forms an indispensable adjunct, being constantly referred to in the fulfilment of the functions of the department.
- (4.) The facility for obtaining all the official information referring to the economic condition of India.
- (5.) The anticipated growth of the collections. Donations may be expected to a large extent, if the official connexion with the India Office is maintained. The donors, most of them Indian officials or persons directly interested in India, will prefer to place their contributions in charge of what they consider as their own Government, as they will feel more certain that their gifts will continue to be used in the interests of India.

Expected Practical Advantages.

Throughout the exposition of principles in this paper, and throughout the description of the executive arrangements embodying those principles as contained in Part III., more attention has been directed towards the explanation of the proper modes of action than towards an enumeration of the final advantages which may be derived from the India Museum. What is usually claimed for museums or exhibitions is the economic, scientific, or educational information which may be derived from them. But the real point is not the amount of advantage which *may* be derived, but that which *is* derived. The efficiency of a museum is to be judged, not by the intrinsic worth of its collections, but by the amount of useful information which it brings into current use. As a rule, however, it is not sufficiently taken into account that this efficiency can only be attained under conditions which are often not practically realised. If all the people whom a museum is to enlighten were to come to it, if they had all the time and the skill to perform the work of inquirers, they might with great trouble obtain a few grains of metal out of the mine to which access had been given to them. But this concurrence of circumstances is exactly what cannot be expected actually to happen; neither the classes engaged in practical business nor the general public have the requisite time or training. If the mine is to be of use to them the ore must be dug up and smelted, the metal prepared and fashioned into articles of immediate utility, and brought within their reach. As little as any individual can be expected to be his own manufacturer, so little can he be expected to do for himself with his own resources the work of scientific inquirers and technical specialists, however much he may be interested in the result of such work. What characterises a practical man is not the ability to

discover new scientific results, but the power of applying such discoveries to his own advantage or to that of others. In the preparation of the present scheme this point of view has never been lost sight of, and thus before calling attention to the benefits which may be derived from the promotion of investigation, and from the dissemination of information with regard to India, it was first necessary to show that adequate means exist for the accomplishment of these purposes, and that if these means are taken advantage of there is a reasonable prospect that investigation will actually be promoted, and information on Indian subjects disseminated to an extent which could not be attained in any other way.

There still remains a question to be dealt with: granted that an institution consisting of the Museum, Library, and Institute here alluded to will be efficient in accomplishing the immediate purposes indicated—the promotion of investigation and the dissemination of information—are the practical advantages resulting from success in this effort worth attainment at the required cost?

This question will be best answered by considering the importance of such an institution under the following aspects:—

- (a.) The commercial usefulness of such an institution :
- (b.) Its educational influence :
- (c.) Its political advantages :
- (d.) The assistance it will render to Government in the carrying out of its policy with regard to science, art, and literature.

(a.) COMMERCIAL USEFULNESS.

One of the most obvious effects of such an institution would be its influence on the development of the commercial relations between England and India.

In considering this question, it is desirable to look forward to the time when trade museums giving a picture of all the economic resources of India will have been established throughout the principal seats of commerce in this country, as well as in those of India. If typical collections on the plan here advocated are once created, it is believed that their multiplication will be the result of support received from the public. The manner in which the chief seats of commerce in this country have subscribed for the reproduction of the textile collections justifies this expectation.

It is necessary, however, to guard against exaggerated notions as regards the possible effects of such museums.

It would be a delusive expectation to suppose that the information contained in the trade museums will as a rule be of immediate use to men of business without the trouble of special inquiry, though this will be the case as regards some portions of it. It must be remembered that the practical success of a mercantile enterprise is often dependent on the concurrence of such apparently trivial and singly unimportant conditions as general information cannot embrace.

But it would be as unreasonable to declare trade museums of no use because they cannot attain such direct and immediate ends as it would be to declare a topographical survey useless, because it cannot relieve the engineer of the necessity for making a special study and a special map for his railway, or to consider a geological survey superfluous because a special inquiry and preliminary experiments will be necessary for a mining enterprise. The use of the economic picture of the country given by the trade museum will be exactly of the same kind for all commercial operations as that of a topographical map, for operations dealing with the surface of the earth. It will show the general commercial character of every locality, point out where information is to be obtained, and indicate the nature of the materials which are to be expected. Special inquiries, whether on the part of the man of business or on that of some special Government department, which, because of their speciality, cannot embrace a large area, will have their field circumscribed, and be put upon the right track, and thus errors and losses will frequently be prevented.

The effect will therefore be,—

- (a.) To economize skill by presenting, as it were, an industrial bird's eye view of the country, thus saving much preliminary inquiry, and allowing the skill to be directed at once to the right place.
- (b.) To facilitate the acquirement of skill by giving the best existing information regarding every product in India,—information which it would take years to obtain by individual exertion,—and by referring on all general subjects to the best sources of information.

This twofold action will be of special importance now that, in consequence of the shortened communication with the East, *via* the Suez Canal, there goes out to India a yearly increasing number of European agents, who have no Indian experience, and little time to spare for acquiring information in the tedious and imperfect manner in which at present it is alone possible for them to obtain it.

The practical use of trade museums will therefore be twofold:—

- (a.) They will be calculated to promote trade directly, by becoming instrumental in facilitating commercial transactions. This feature has been indicated and acknowledged as regards the collections of Indian textile manufactures which have been already issued by the Department of the Reporter on the Products of India or which are now in course of preparation. What applies to these collections applies equally to other collections, all of which, being as far as possible identical, will allow of easy reference from any place where one of the museums is established to all other places possessing a corresponding collection or museum.
- (b.) The chief use of the trade museums will, however, be indirect. They will become useful by the information they will afford, that is, by the number of practical suggestions which men of business engaged in commerce, agriculture, or manufactures will derive from them.

As the principal use will thus be indirect, it seems almost impossible to make any precise assessment of it. If we ask what is the money value of information, we may content ourselves with asserting that the value is considerable, and that in the long run knowledge is the most influential of all agencies in changing and developing the course of production.

Perhaps the measure of the practical effect and usefulness of industrial information may be briefly stated thus:—

The potential usefulness of such information may be estimated by the number of suggestions which are deducible from it, those suggestions bearing either (a) on the immediate commercial utilization of products already existing in some locality in quantity and quality suitable for the market, or (b) on the development of a cultivation, production, or manufacture, by indicating the locality suited for it, and by showing the conditions which must be realized in order to obtain a marketable article.

But whatever the value of a mere suggestion may be, the time which is required to ripen it into a successful enterprise is very considerable, and the more considerable, as a rule, the more important the suggestion is. A suggestion begins to be practically useful only when acted on, that is when taken up by a man of business who will devote time, trouble, and money to its utilization. Moreover, even when acted on, the effects may often be very different from the anticipations which have been formed from a general survey of the position. The rapid development of any new branch of commerce, or of any new kind of enterprise, is always preceded by a longer or shorter period of gradual accumulation of experience; of discovery of the proper methods of action; and of training of the proper agents. The history of almost every branch of trade shows to what reverses and failures every enterprise is exposed at this stage, how many conditions independent of the soundness of the suggestion must concur, in order to make it a practical success, and what a period must elapse between the first practical success of an idea and its general adoption.

Thus, however great the potential usefulness of industrial information may be, the actual extensive introduction into practice of the suggestions deduced from it will be a matter of chance. But the more widely known the suggestions are made, the greater will be the chances of their being turned to practical account.

It is necessary, however, to bear always in mind that the collection of information is, as a rule, a simple process when compared with the difficulty of bringing that information home to the people who should put it into practice.

As regards efficiency in *diffusing* industrial information, it may safely be asserted that trade museums will be found more perfect than any other means used for the same purpose. This remark may be best illustrated by comparing, for instance, the action of the trade museums with that of exhibitions.

Appendix A. deals fully with this question. A comparison of the facilities for obtaining information which are afforded by exhibitions with those afforded by the

trade museums leads to the conclusion that the latter are, for the following reasons, far better suited to the purpose,—

- (a.) Trade museums are permanent, whereas exhibitions are only temporary.
- (b.) They are more compact, from not containing duplicates of the same product by different exhibitors.
- (c.) They are more systematic, the products being arranged according to their trade classification, whereas in exhibitions the interests of the exhibitors prevail, as a rule, to the detriment of system.
- (d.) In the proposed trade museums the specimens will not only be select, characteristic, and classified, but will be completely described and accompanied by industrial information. Whoever has had the slightest experience of exhibitions must know what difficulties have to be encountered by any one endeavouring to obtain facts relative to exhibited articles, and how much the value of the frequently indefinite and superficial information contained in the Jury reports is diminished by the dispersion of the collections to which the reports refer.
- (e.) Another great advantage is the cheapness of the trade museums. With an expenditure which would not cover one year's district exhibitions throughout India, permanent institutions of a far superior character, as regards the purpose here in view, can be established in every district.

It is, however, by no means to be understood that exhibitions should be superseded by trade museums. Exhibitions exercise a powerful influence of their own, in so far as they appeal directly to and develop the spirit of enterprise and of competition among the exhibitors. Their influence in that direction might probably be farther extended by increasing the direct interest of the exhibitor in the exhibition. This, however, is not the place for entering upon this subject. All the conclusions just enumerated apply only to one kind of influence as exerted by exhibitions, viz., the diffusion of industrial information. Whenever exhibitions are undertaken with this view, it is certainly advisable to make the effort tell in the production of permanent trade museums, and to use the exhibitions merely as feeders to permanent institutions of this kind, capitalizing as it were the experience and the information derived from the successive exhibitions.

This subject is in intimate connexion with the whole future both of exhibitions and of museums, and is besides one of the questions of the hour. Appendix C., p. 57, contains the letters which have appeared in the "Times," and in which my views on this subject have been explained at some length.

There is one more point which should be here alluded to. The objection is now and then raised that it is not worth while to disseminate commercial information on India, as the great houses engaged in Indian trade already possess more information than any such scheme could afford them. In some respects this is no doubt frequently the case, but the information possessed by them usually refers mainly to the few staples in which they are interested. But even were it granted that the commercial information which will be afforded by the trade museums is already possessed by a few firms, it would be like arguing that books are unnecessary because there are some people who already possess the knowledge communicated by them. Commercial knowledge amounts under many circumstances to a virtual monopoly, and secures its possessors against competition. If the acquisition of this knowledge be facilitated, all the advantages derived from increased competition will follow. Experience shows that the increased competition alone, produced by railways, steam navigation routes, and telegraphs, put the leading firms on their mettle, and forced them to discard the tortuous system of middlemen, to enter into direct communication with the up-country producers, and to ascertain on the spot all the circumstances referring to their particular trade. But startling revelations still appear from time to time, showing how much remains to be done in the same direction. A well-conceived and well-executed scheme for rendering industrial information regarding India accessible to the commercial classes generally, might well be expected to contribute to a further development in that direction.

(b.) EDUCATIONAL ADVANTAGES.

The use of a museum, and of typical collections like those here described for educational purposes, is very obvious. Thus the commercial and the manufacturing series of the collections afford an admirable groundwork for commercial and technical education, and the facility with which these collections can be multiplied renders their acquirement possible for educational institutions interested in India. Probably for such purposes it would be advisable to prepare special collections in a smaller compass than those destined for the practical use of trade. The matter possesses some importance for this country, but as regards India, the subject of technical education, and of a larger introduction of the natural sciences in general into the higher teaching, is a question of great importance. The chief defect of the present educational system in India is that it is founded almost entirely on book-work,—cram and examinations. This is true even as regards sciences, in which experiment and observation are the only efficient means of acquiring knowledge. Of recent years some steps have been taken to give to education in India a more practical tendency, as shown by the appointment of a few professors of natural sciences and practical arts. The Museum might afford help in two ways. In the first place the typical collections previously mentioned would be available for India, and facilitate the acquirement by the natives of an extended and accurate knowledge of their own country. In the second place the Museum would be well fitted and ought to be used for the purpose of arranging and transmitting to India typical collections referring to science in general, such as mineralogy, botany, mechanics, &c., without which it is hopeless to attempt a general introduction of the teaching of natural sciences or of technical arts.

The effects of the proposed Institute on the higher education of the natives of India who come to London and in training the candidates for the India Civil Service before they proceed to India have already been alluded to.

(c.) POLITICAL ADVANTAGES.

The political advantages which India may derive from a wide-spread knowledge of her condition and resources depend on the fact that the final policy of the Government of India is determined in this country by the action of Parliament, which is itself the expression of the political opinions of the English people. There can be no doubt therefore that it is of great importance that the interest in Indian matters should be kept alive, and that a knowledge of the characteristic features of the country and of its people should be extended as far as possible. At present the apathy of the English public, and even of Parliament, when any Indian question comes up for discussion, has become proverbial. This does not arise from any inherent want of sympathy with the many millions under English rule in India. The course of public opinion during the present famine distinctly proves that, in any question appealing directly to their minds and sympathies, the English people pronounces in an unmistakable manner its anxiety for the welfare of India. The apathy prevailing with regard to most Indian questions is largely the result of ignorance. The mind, bewildered by the strangeness of everything referring to India, assailed from all sides by contradictory opinions, cannot develop an active feeling of political responsibility for the course of the Indian policy of England, and cannot realize the good or bad effects of any given line of policy, the materials for forming an opinion on such a subject being so difficult of access.

For the last ten years official publications, such as the Moral and Material Progress Reports, have been issued with the direct intention of keeping Parliament and the public informed of the condition of India. But apart from the fact that Blue Books seldom enjoy a wide popularity, India is so different from this country that few people would be capable of realising from a mere literary representation its special characteristics.

And yet there are at the present time in England many important sections of the public warmly interested in certain special matters connected with India, and though, as a rule, unconnected with politics, they frequently aspire to political influence. The missionary and philanthropic interest, for example, has a considerable amount of public support, and has exercised considerable influence on India. Then there is the Manchester interest, based on the commercial con-

nexion between a cotton producing and a cotton manufacturing country; the general interest which a large portion of the educated classes feel for India as the home of a refined taste and an harmonious art; and the interest felt by scientific and literary men in India as the cradle of modern linguistic science. There are besides the numerous old Indians, connected personally or through their families with India, and frequently continuing to take a warm interest in it. An institution therefore making information with regard to India of easy access would not have to create an interest, but would appeal at once to the sympathies of many.* It would thus start under favourable auspices.

(d.) ASSISTANCE RENDERED TO GOVERNMENT IN ITS RELATIONS TO SCIENCE, ART, AND LITERATURE.

The work of the Government, both in India and on this side, in relation to science, art, and literature, has been very great, but it has not been guided by any fixed or defined policy,—at least not in the case of measures having other objects in view than immediate administrative utility. With regard to all measures apart from the great surveys, it has been necessary to fight every step, and progress has depended more on an occasional interest in the matter taken by some highly-placed official, or on some immediate need of information, than upon a clear recognition of the objects to be accomplished and the means required.

A preliminary step in the matter was taken in 1869 by the Secretary of State for India. On the 14th of December of that year a despatch was sent out asking the Government of India to report everything which had been done in the way of promoting science, art, and literature in India since the assumption by Her Majesty the Queen of the direct government of that country. A similar inquiry was also instituted on this side. Although no action has been taken on the reports then received, the documents resulting from this step are important as giving the latest, though by no means a complete account of the position; as expressing the wants which were felt to be pressing; and as containing suggestions with regard to the Government policy which was desirable in the matter. Part II. contains a summary of the results of this inquiry. After taking into account all the bearings of the question, and going back to the origin of the Government action in the matter, it appears—

That museums and libraries are indissolubly connected with the whole action of Government for the promotion of science, art, and literature in India, by affording representations and summaries of the results of that action, and by rendering these summaries universally available;—

That the efforts for the promotion of science, art, and literature in India, although encouraged by humanitarian motives, were originally prompted by an immediate practical need of the information supplied by these efforts; and that their subsequent extension has been the result of political necessity, administrative usefulness, or commercial policy, — until the whole of India came to be covered with a network of scientific operations, and provided with an increasing number of centres for research or training in arts, sciences, and literature, so that at the present moment the action of the Indian Government embraces almost the whole field of a full scientific exploration of the country, with the acknowledged intention of procuring an exact basis for the administrative system; and—

That the share of work falling on the India Office in furthering this movement, if of a different character from that performed by the Government of India, is not less important, nor less fraught with political and economic consequences; and that therefore its proper discharge should form a portion of the permanent policy of the Office.

* The following are the chief societies or associations in this country which take a direct interest in Indian matters: The Royal Asiatic Society; the Indian Section of the Society of Arts; the East India Association; and the National Indian Association, of which an important branch has recently been formed in Manchester.

Proposals.

The space appropriated to the India Museum and Library has, for many years past, been considered so unsatisfactory that various proposals have been from time to time brought forward for providing them with more suitable accommodation.

The space at present occupied by the Museum and Library appears, from a statement prepared by Sir Digby Wyatt, to be as follows :—

Exhibition space in the Museum	-	-	-	6,745 square feet.
Museum stores at the India office	-	-	-	2,090 „
Museum offices	-	-	-	1,630 „
The Library and its offices	-	-	-	5,373 „
				Total
				15,838 „

In round numbers, the space occupied by the Museum may be taken at 10,000, and that by the Library at 5,000 superficial feet.

The unexhibited Museum collections now in store formerly occupied about as much space as those now exhibited, which are, however, under the present imperfect arrangements, crowded to excess.

The site opposite the India Office on which it has been proposed to erect a new Museum and Library belongs to the Secretary of State for India; it is in shape an irregular quadrangle, having a length of 290 feet on one side and 312 feet on the other, and a width of 95 feet at its narrower and of 113 feet at its wider end. After making allowances for the widening of the street in front of the India Office, the space available for building may be roughly stated as having a length of 304 feet and a breadth gradually widening from 76 to 92 feet, giving a mean of 84 feet wide, and affording a superficies of 25,000 square feet of ground space.

This site is the one which naturally suggests itself as a suitable one for the erection of a new Museum and Library. Among the reasons which point to its being appropriate are the following :—

- (a.) *Its proximity to the India Office*—thus facilitating the official relations between it and other departments of the Government; keeping the collections in a place convenient for administrative reference; and maintaining the visible connection between Government and an institution intended to present and to make accessible to the general public a picture of the resources of India and the condition of her people.
- (b.) *Its central position*—close to the Houses of Parliament, and accessible to the classes most likely to take a practical interest in Indian affairs.
- (c.) *Its unsuitableness for other building purposes*.—The subjoined letter* by Mr. James Fergusson, who is fully acquainted with the circumstances of

* My attention has been directed to a letter signed "S." which appeared in your issue of the 21st instant, referring to the proposed erection of an Indian Museum on the vacant piece of land in Charles Street. As, however, his protest against this appropriation seems to be based on an erroneous impression, perhaps you will allow me to state what I believe to be the facts of the case. During the time that Mr. Layard was First Commissioner of Works the subject of the additional accommodation required for Government offices was most carefully considered, not only in the Office of Works, but by a committee of the Cabinet specially appointed for that purpose, and a scheme was then drawn out and approved which not only provided for all present wants, but admitted of any extensions that might be required in the future, so far as they could then or can now be foreseen. A part of this scheme was to continue Parliament Street, with a uniform width of about 120 feet, to Great George Street, and to erect on the west side of it a great block of Government offices extending from the recently erected block in Charles Street to Parliament Square, and extending east and west from the new line of Parliament Street to the Institution of Civil Engineers, so as to have a frontage occupying the whole of the open space towards the south. The scheme as originally submitted contemplated pulling down the whole of the houses on the north side of Great George Street, and in Duke and Delahay streets, so as to clear the whole area up to the park. On a careful valuation, however, being made, it was found that the value of the property so proposed to be removed was so enormous that this part of that scheme was abandoned. Cheaper sites could be obtained in other localities, which were quite as convenient for Government purposes. If it were possible to contemplate the removal of the whole block of houses between Parliament Street and the park, I would be the first to join with "S." in protesting against so grand a scheme being frustrated by the question of the proposed Museum, but as the removal of the whole block seems neither feasible nor necessary for the architectural embellishment of the quarter, the question seems to me to acquire a totally different aspect. The slip of vacant ground in front of the India Office is too narrow to admit of any building upon it being set far enough back to prevent a tall building, such as a Government office must be, from darkening the windows of the India Office, and being dark itself, and is far too narrow to admit of any compact office being erected upon it. Even then it could only be as an isolated excrescence on any block of offices erected in Parliament Street. Unless,

the case, deals with this aspect of the question. He points out that this site is unlikely to be now of use to Her Majesty's Government; and it could be disposed of to private individuals or companies only under such restrictions as would materially diminish its value.

The following are the more important proposals which have been from time to time brought forward for the accommodation of the Museum and Library:—

- (1.) A plan by Sir Digby Wyatt, laid before the Secretary of State in Council in June 1869, contemplating the erection on the vacant ground in Charles Street of a building, 250 feet in length by 76 feet in width, for the accommodation of the—

Museum and Offices,
Library and Offices,
Geographical Department, and the
Asiatic Society.

The total floor space provided by this building amounts to 60,000 square feet, and the estimated cost to a little over 60,000*l.*

- (2.) A plan by Sir Digby Wyatt, laid before the Secretary of State in Council in June 1873, for the accommodation of the Museum alone. The net floor space available for all purposes amounts to upwards of 40,000 square feet. This building was estimated to cost in all about 42,000*l.*,* an additional 18,000*l.* being required for cases and other fittings, and for a communicating bridge between the new building and the office, as also for the alterations required to fit up the rooms set free at the India Office by the removal of the Museum.

- (3.) A plan by Sir Digby Wyatt, laid before the Secretary of State in Council in July 1873, contemplating the accommodation of the—

Museum and Museum offices, and the
Library and its offices.

The total area provided for all these purposes amounts to about 48,000 square feet, the entrance hall, passages, and staircases being in this, as in the above instances, excluded from the calculation. Of this space about 11,000 square feet are intended for the Library, being about twice the space now occupied by it: the remainder, equal to 32,000 square feet, is the space available for the Museum, its stores, and offices, which now occupy about 10,000 square feet. The estimated expenditure amounts to about 75,000*l.*, of which 50,000*l.* would be required for the structure itself, and 25,000*l.* for covering all the additional items of cases, bridge, and fittings, and for refitting the space vacated in the India Office, &c.

- (4.) An additional plan by Sir Digby Wyatt for a building for the Museum and Library of considerably less height than the one referred to in plan No. 1, but affording about the same amount of net floor space, namely 60,000 square feet.
- (5.) A proposal for the erection of a building at South Kensington on ground belonging to Her Majesty's Commissioners for the Exhibition of 1851. The proposal was mooted in 1872, but never assumed a tangible shape. The building was intended to accommodate the Museum alone; the ground space for it amounts to only a little over 8,000 superficial feet, or less than one-third of the Charles Street site. The total floor space, on the supposition that the building was to be mainly in three stories, could not afford more than 25,000 square feet for all purposes, offices included. The expenditure was estimated at 33,000*l.*, which sum referred to the building alone and did not embrace the cost of the fittings, cases, &c. included in Sir Digby Wyatt's total estimates.

therefore, it is determined to remove the whole block of houses up to the park—of which I do not see the remotest possible chance—it seems that the vacant piece of ground in question is useless, or nearly so, for the erection of Government offices, but admirably adapted for a low building, principally lighted from the roof, such as is at present proposed. I need hardly add that the erection of a building to contain the Museum and Library of the India Office would be the greatest boon that could be conferred on all who are interested in the literature or art of India, or in the development of her material resources.—(*Pall Mall Gazette*, 28th January 1874.)

* The estimate for the building is set down at 40,000*l.*, but as the total estimate includes 5 per cent. for contingencies, a further sum of 2,000*l.* has been added.

- (6.) An offer made by Her Majesty's Commissioners to the Secretary of State in Council, of the eastern galleries hitherto used for the annual international exhibitions. Two floors, each consisting of a gallery 600 feet in length by 30 feet in width, and having a total area of about 36,000 square feet, may, it is understood, be obtained on a repairing lease at a yearly rental of 2,500*l.* In order to obtain a correct idea of the entire expenditure involved in this proposal, as also of the actual amount of exhibiting space which it would afford, it has to be kept in view that either a part of the galleries must be arranged for use as offices, or else that independent offices must be erected for the purpose. The cost of yearly repairs would likewise have to be borne by the Secretary of State in Council.
- (7.) A consideration of the plans of Sir Digby Wyatt shows that it is possible to erect on the Charles Street site a building well suited for the carrying out of the whole programme sketched out in this paper, providing accommodation for the India Museum, the Library, and the Asiatic Society, and affording a certain amount of facilities in the way of lecture rooms, &c. Two of the above plans (1 and 4) each provide a net floor space of about 60,000 square feet, an amount which would be sufficient. It is however advisable to obtain from Her Majesty's Government an addition to the present ground of 50 feet, which is the distance between the boundary of the site in the possession of the India Office and the out-houses of the police station in King Street. This addition would add greatly to the convenience of the internal arrangements, as more space would then be available for lecture rooms and other purposes connected with the teaching part of the institution.

With regard to the above, as well as to all the previous plans of Sir Digby Wyatt, the occasional utilization of the great room of the Library for receptions by the Secretary of State has been contemplated as supplying a want frequently felt at the India Office.

The table opposite page 24, at end of this section, gives a comparative view of the dimensions and costs of the proposed buildings, together with plan and scale of ground covered by each of them.

As regards expenditure, if the last estimate of Sir Digby Wyatt's be taken as a starting point, the extension of the length of the building from 300 to 350 feet would raise the cost from 50,000*l.* to about 60,000*l.* The additional expenditure for bridge, cases and fittings, cost of alterations, &c. would remain as before at 25,000*l.*, and bring the total sum up to 85,000*l.* Under such circumstances it may be held that the sum of 100,000*l.* will be the limit of any expenditure which is likely to be actually incurred, including all the costs of fittings and other arrangements.

Practically two alternative courses present themselves for consideration, the one being the erection of a new building on the site in Charles Street, the dimensions and expenditure varying according as it is to afford space for the Museum alone or for Museum and Library combined, or for the execution of the full programme here advocated. The other alternative is, the transference of the Museum collections to South Kensington. In order to judge between the two proposals, the advantages and the disadvantages of the removal of the Museum to South Kensington must be considered. The latter course recommends itself on two grounds, (1) it avoids the spending of a capital sum by the substitution of a yearly rental, and (2), the possibility of beginning the arrangement of the Museum collections at an early date. These galleries are well suited for the display of the contents of the Museum, and operations might be commenced as soon after October next as arrangements for the provision of the necessary offices and working rooms have been completed.

The disadvantages of the removal are considerable, namely—

- (1.) As regards position, administrative convenience, and the convenience of that portion of the public likely to be practically interested in Indian

matters, the South Kensington scheme is manifestly inferior to the other alternative.

- (2.) In the case of the South Kensington proposal, the space which would be gained at the India Office by the suggested changes would be very small, less than 5,000 square feet. Even of this the Library would have to absorb the greater portion, so that very little new accommodation would be acquired to meet the pressing administrative wants of the office. The space set free by the adoption of the complete Charles Street plan would on the other hand furnish 15,000 square feet for the extensions required by the other departments. The reasons for this difference between the gain to the general establishment from the Charles Street scheme and that from a transference to South Kensington are (1) that the Library would not only remain where it is, but would have to be enlarged, (2) that the department of the Reporter on the Products of India, which might be conveniently removed to the Charles Street building, could not follow the Museum collections to South Kensington without great inconvenience. The Reporter's offices would not only continue to occupy their present space, but the two adjoining rooms of the Museum would have to be retained for certain collections which are indispensable for reference.
- (3.) The Library would be still left in its present unsatisfactory condition, which would be but slightly mitigated by its extension into part of the space vacated by the Museum, which is in no way suitable for it.
- (4.) The greatest disadvantage of the South Kensington proposal is that it refers to the Museum collections alone. The dissociation of the Museum and Library seriously mutilates both, and renders each of them an inferior agency for all purposes, for research as well as for disseminating information. The great results which may be expected from their organic union, and from the developments which a living institution like that here described may hope to achieve with the help of private support, would be but very imperfectly attained if they were to be separated.

The matter stands thus,—momentary convenience on the one hand, as against permanent and far-reaching efficiency on the other. On the latter ground no choice seems possible but the erection of suitable buildings on the Charles Street site. Temporary financial exigencies alone speak in favour of the transference of the India Museum to South Kensington.

Leaving for a moment the consideration of the financial aspect of the case, two additional observations may be made,—the first is, that if it should be decided to erect a new building opposite the India Office, the galleries at South Kensington if taken on a three or four years lease would be admirably adapted for temporarily arranging the collections, and for actively commencing the preparation of the typical collections for their final location in the new Museum. This suggestion appears likewise to be the one which would best accord with the true interests of Her Majesty's Commissioners. It would, if adopted, avoid the permanent alienation of galleries of essential use to them, should the exhibitions at some future time be resumed on a more efficient basis as is very likely to be the case. The other consideration is that, if the idea of utilizing the ground in Charles Street be definitively abandoned, steps should be taken for attaining at South Kensington, even if under less favourable conditions, those advantages which are likely to arise from the combination of the Museum and Library, and from the initiation of the comprehensive plan of action here advocated.

Money.

If the proposal here submitted for erecting in Charles Street a building suitable for the reception of the Museum, the Library, and the Asiatic Society, and for the accomplishment of all the other purposes which such an institution should aim at, be adopted, the question then arises how the necessary funds are to be provided.

The following considerations lead to the conclusion that Her Majesty's Government should co-operate with India in this matter.

In enumerating the advantages which India would derive from the measures here submitted, it was apparent that many of the proposed operations had quite as much reference to this country as to India. In fact, unless attention be systematically devoted to making the collections useful for Indian purposes, the balance of advantage will decidedly be in favour of England.

The commercial benefit ought to be mutual. England derives as much advantage from being well supplied with raw produce, as India does from finding an outlet for it. A well arranged museum will enable the English manufacturer to study the conditions with which he must comply, in order to fit his wares for the Indian market. A proof that the action of the India Museum in this respect is appreciated by the great manufacturing centres of this country is found in the readiness with which a considerable sum of money has been subscribed to obtain the textile collections referred to,—a readiness which shows that equal encouragement may be expected with regard to Indian trade collections referring to other industries. England also derives advantage from the opportunity for scientific research and for artistic instruction which the Indian collections furnish. With regard to the instruction in art, it is acknowledged on all sides that the teaching conveyed by the Indian collections sent to this country since 1851 has been largely instrumental in raising the character of the art manufactures of England. The trade collections which have been referred to partake almost as much of the artistic as of the purely trade character.

Thus it is apparent that both England and India have an interest in maintaining such an institution as the combination of the Library and Museum would afford. It would only be fair, therefore, that the expenditure connected with it should in some measure be shared between the two countries.

As regards this expenditure, it must be premised that the whole of the collections have either been purchased by Indian money, or presented by people connected with India, and that the cost of the maintenance of the Museum, as also that of the Department of the Reporter on the Products of India, from the action of which England derives a benefit fully equal to that of India, is entirely borne by India.

Under such circumstances it may be held that England has sufficient interest in the undertaking to warrant her taking a share in the cost of erecting a suitable structure for the Museum and Library.

It may be added that in view of recent circumstances, fresh in the memory of everybody, such a course would be only a graceful act on the part of England, and the fact that England would receive an equivalent for her money would by no means detract from the gracefulness of the act.

The share of England might fairly stand at one half of the required sum, or at 50,000*l.*, in addition to the 50 feet of extra space to the plot already in possession of the India Office.

As regards India, it may be held that there are good reasons why the India Office would be justified in incurring the proposed expenditure. The scientific surveys in India at the present moment absorb more than a quarter of a million per annum; the Indian Museum at Calcutta is being erected at an expenditure of about 100,000*l.*; the Victoria Museum at Bombay cost about 60,000*l.* Considering the practical and permanent importance to India of the proposed institution, which is only the capping stone, as far as the India Office is concerned, to the whole activity of the Indian Government

with regard to science, art, and literature, it seems not too much to devote 50,000*l.* to the object. The temporary financial difficulty, arising out of the Bengal famine, need not seriously hinder such a proposal, as it might be arranged that the sum payable by the English Government should meet the outlay during the first two years. Nor ought precedents to be forgotten. The three universities of India were founded at the very worst period of the mutiny, under far graver financial circumstances, and it should be kept in mind that if the original outlay is once incurred by the two Governments, the beneficial influence of the institution will probably be sufficiently appreciated to enlist on its behalf a considerable amount of private support.

Comparative view of the Dimensions and Costs of the proposed Buildings for the India Museum.

No	Description.	Shape & Area of Ground covered by Building		Approximate Dimensions			Net Floor Space (Part, passages, stair cases etc. deducted)	Estimated Cost	Sitings, cases etc. taken at India Office
		Length	Breadth	Length	Width	Height			
1.	Plan by Sir Digby Wyatt for Museum and Library, etc. (June 1869)	250 feet	76 feet	60 feet rising at parts to 75	76 feet	59,000 superficial feet	£61,000	not estimated	
2.	Plan by Sir Digby Wyatt for Museum alone. (June 1873)	25,000 square feet	300 feet	41 feet rising at parts to 48	84 feet	40,000	£42,000	£18,000	
3.	Plan by Sir Digby Wyatt for Museum & Library. (July 1873)	25,000 square feet	300 feet	41 feet rising at parts to 48	84 feet	43,000	£50,000	£25,000	
4.	Plan by Sir Digby Wyatt for Museum & Library.	25,000 square feet	300 feet	52 feet with end block for Library rising to 70 ft	84 feet	60,000	not estimated	not estimated	
5.	Building for Museum alone at South Kensington.	8225 square feet	-	60 to 70 feet	-	about 25,000	£33,000	not estimated	
6.	Exhibition Galleries at South Kensington for Museum alone.	18,000 square feet	600 feet	50 feet	30 feet	36,000	£2,500 yearly rental	not estimated	
7.	Proposed Building for Museum, Library, Asiatic Society and Lecture Rooms.	30,000 square feet	350 feet	40 to 60 feet decorating to required space	85 feet	60 to 70,000 with height of Nos 2 & 3 upwards of 90,000 with height of No 1.	£60,000 to £75,000 according to size.	£25,000	

* Note: The height of the India Office is 82 feet



Part II.

Summary of the Work hitherto accomplished for the Promotion of Science, Art, and Literature.

A.—WORK CARRIED OUT IN INDIA.

The action of the Government of India may be arranged under the following heads :—

1. Surveys or systematic and exhaustive investigations, which, although generally undertaken for some immediate administrative purpose, partake more or less of the character of scientific inquiry, both as regards the methods used in their execution, and the precision and scientific importance of their results.
2. Museums, libraries, observatories, botanical gardens, or laboratories for scientific or technical inquiry and experiment, which serve as centres of reference to the public on subjects connected with the science, art, and literature of India.
3. Exhibitions undertaken with a practical object in order to give a picture of the material resources of the country, and to foster their development.
4. Schools of art and of engineering for the supply of training in applied art and applied science.
5. Promotion of literature by grants of money, &c.

1. SURVEYS.

The foundation of all the surveys is the Great Trigonometrical Survey begun some 70 years ago and now approaching its completion. It is the basis of all the geographical and topographical operations within the limits of the empire, and has been combined with geodetic investigations touching the figure of the earth and the length of its polar and equatorial axes. These investigations proceed *pari passu* with the trigonometrical and linear measurements in order that the latter may be correctly utilized. A series of meridional and longitudinal triangulations are thus spread over India as a skeleton which the Topographical and Revenue Surveys fill in with useful details of mountains and rivers, towns and villages. The total annual cost of the entire Survey Department, including the Great Trigonometrical, Topographical, and Revenue Surveys, amounts to 240,000*l*.

a. Trigonometrical, Topographical, and Revenue Surveys.

The survey ranging next in importance is the Geological, in the progress of which in the 22 years of its existence an area four times as large as Great Britain has been examined, notwithstanding the limited staff and the exceptional local difficulties which had to be encountered from the inaccessibility of many of the districts. The contributions of this survey, both to geologic science generally as well as to the acquirement of an accurate knowledge of the mineral resources of India, have been of the highest value.

b. Geological Survey.

A survey was also instituted five years ago under a Director-General of Statistics, the object of which is to obtain, for each district of India, a condensed view of all its important features, embracing people, geography, administration, agriculture, commerce, and manufactures.

c. Statistical Survey.

In 1870 General Cunningham, who had already, between 1862 and 1865, been occupied in an archæological exploration of the Ganges basin, was appointed Superintendent of the Archæological Survey of India. The regular survey began in October 1871, and it is likely to yield results of the greatest importance to comparative ethnology and history, while possessing besides an independent artistic value.

d. Archæological Survey.

e. Industrial Survey.

In addition to the above there are two surveys not yet commenced; these are an Industrial Survey and an Ethnological Survey.

The great surveys first mentioned give a delineation of the physical features of the country, and the Geological Survey discloses its structure and its mineralogical resources. The annual expenditure on these surveys amounts to a quarter of a million pounds sterling. It appears natural that the exploration of the country should go a step further and include an examination of all its products, and of the conditions which determine their manufacturing and commercial value, and the mode of their commercial utilization. This is the object of the proposed Industrial Survey, which would cost *in all* considerably less than one-half of the annual outlay for the scientific services above referred to.

f. Ethnological Survey.

An Ethnological Survey will resemble the Archæological, in so far as its prime object will be a scientific one. Our knowledge of the ethnological character of the various races inhabiting India, if abundant, is very deficient in the two respects which determine the scientific value of knowledge, *i.e.*, completeness and precision. The inquiries hitherto made are rendered of little value from the want of systematic action and the use of method, and it is desirable that no time should be lost in securing the traces of many tribes now fast disappearing or losing their distinctive characteristics. This applies mainly to the aboriginal part of the population, to whom roads and railways and the extension of a regular Government now make access possible.

2. MUSEUMS, LIBRARIES, RECORDS, BOTANICAL GARDENS, AND OBSERVATORIES.

Museums and Libraries.

Considerable efforts have of late been made in India to provide proper accommodation for the accumulated stores of zoological, economic, artistic, scientific, and literary collections. The oldest museum in India is that of the Asiatic Society in Calcutta, which now forms the nucleus of the great Imperial Museum of India, for which a large and magnificent building, costing 100,000*l.* and occupying a quadrangle of 350 feet square, is now approaching completion. This museum will also include the Geological Museum established in 1840. A library is also connected with it, as with most of the other museums. The collections in it are to be arranged under the following heads:—

- Natural history collections.
- Collections of the Geological Survey of India.
- Ethnological collections.
- Archæological collections.
- Library of the Asiatic Society.
- Library of the Geological Survey Department.
- Library for general reference.

The character of this museum is mainly scientific. There is no attempt at a representation of the commercial products and manufactures of the country, although the geological collection is to a certain extent economic. A museum of economic botany, however, will also probably be established in connection with the Botanical Gardens at Calcutta. The want of a general Economic Museum will be supplied by the Institution founded and recently opened by Sir George Campbell.

In Bombay the existence of the present Government Central Museum—the Victoria and Albert—dates from 1857, as the collections previously existing and arranged were almost all destroyed during the mutiny. It occupies a substantial building in the Horticultural Gardens, and is strictly an economic museum, illustrating the mineralogy, botany, and zoology of Western India. The museum of the Asiatic Society in Bombay, on the other hand, is devoted to ethnological and antiquarian collections.

The Government Central Museum at Madras has been established since 1851. It consists of—

- Natural history collections.
- Collections illustrating economic geology.
- Miscellaneous collections containing illustrations of manners, customs, and manufactures.
- Library referring chiefly to natural history.

Among the other museums existing in India, special mention must be made of the Lahore Central Museum, established in 1864. This has mainly an economic character, showing the raw products and the manufactures of the Punjab and the adjoining countries, but containing also collections of a scientific and archæological value, such as a fine collection of coins and an interesting gallery of Græco-bactrian sculptures.

The number of museums now existing in India will appear from the following list, in which are included those above mentioned :—

- | | |
|--------------------|---|
| Bengal. | (1.) Imperial Indian Museum at Calcutta, which will include the Museum of the Asiatic Society, and the Geological Museum. |
| ” | (2.) Economic Museum at Calcutta, Sir George Campbell's. |
| Bombay. | (3.) The Government Central Museum, called the Victoria and Albert Museum, containing collections of an economic character. |
| ” | (4.) The Museum and Library of the Asiatic Society at Bombay, containing antiquarian collections. |
| Madras. | (5.) The Government Central Museum. |
| N. W. Provinces. | (6.) The Allahabad Museum and Library. |
| Oudh. | (7.) The Lucknow Museum. |
| Punjaub. | (8.) The Central Museum at Lahore. |
| Sind. | (9.) The Karachi Museum and Library. |
| Central Provinces. | (10.) The Nagpur Museum and Library. |
| Mysore. | (11.) The Mysore Museum. |

It will be seen that, with exception of British Burmah, each province of India is already endowed with an institution which may be made, and in some cases already is, a means of rendering information generally accessible to the public. There exist also a few institutions of a more local character, which form a starting point for an organization of district museums all over India, a matter in which Lord Harris took a practical interest some 18 years ago. The most important are the following :—

- | | |
|------------------|--|
| N. W. Provinces. | (12.) The “ Riddle ” Museum at Agra. |
| Madras. | (13.) The District Museum at Rajahmundry. |
| ” | (14.) The District Museum at Utakamund. |
| Punjaub. | (15.) The Museum at Peshawur. |
| ” | (16.) ” Umritsur. |
| ” | (17.) ” Delhi. |
| Oudh. | (18.) ” Fyzabad. |
| Bombay. | (19.) The Framjee Cowasjee Institute and Museum at Bombay. |
| Travancore. | (20.) The Government Museum at Trevandrum. |

In addition to the foregoing, steps have been taken, with varying success, for the establishment of museums in many other places, but as no recent returns make any mention of them it is not known what their present condition may be.

In addition to the public libraries there are certain departmental libraries, besides the important collections of administrative records, the investigation and publication of which have recently been put upon a systematic footing. Departmental libraries and records.

Botanical Gardens have proved of marked use in India and have resulted in the successful acclimatization of many foreign plants, and in the improved culture of indigenous ones. Botanical Gardens. The principal Government institutions of this kind are—

The Botanical Gardens at Calcutta.

The Botanical Gardens at Saharunpore in the North-west Provinces, where recently a museum of economic botany has been organized.

The Botanical Gardens at Ootacamund in Madras.

The Horticultural Gardens at Lucknow in Oudh.

The Horticultural Gardens at Bangalore in Mysore.

There are in addition some gardens established and maintained by the various agri-horticultural societies.

The Madras Observatory has been for many years the centre of astronomical work in India, having been founded in 1787; and in consequence of able management it has acquired an acknowledged position in astronomical science. The Bombay Observatory at Colaba has been established since 1823. Great attention has always been devoted in India to meteorological observations, but only of late years has the subject been receiving systematic attention. Since 1846 — first the collectors, and then the medical officers in districts were charged with keeping rain-gauges and recording meteorological observations, but until recently the only complete meteorological observations were taken at the Surveyor-General's Office at Calcutta, and at the Madras and the Colaba Observatories. Since 1865, however, Meteorological Reporters have been appointed to the Governments of the Punjab, the North-west Provinces, and Bengal, charged with the superintendence of the local stations, and with the completion and discussion of results in their full bearings on agriculture and navigation. Meteorological observations have also been established at Lucknow in Oudh, and at Akyab in Burmah, and at other places. The Sanitary Department has also constantly devoted a good deal of attention to the study of meteorology and to the influence of weather on the sanitary condition of the country.

3. EXHIBITIONS.

The impetus to Indian exhibitions was given by the first two International Exhibitions, that in London in 1851 and that in Paris in 1855. The first province in which exhibitions were organized in India was the Madras Presidency, where under Lord Harris an exhibition took place at Madras in 1855, followed by a series of district agricultural exhibitions which were held in the cold season of 1856-7, and by a large agricultural and industrial exhibition at Madras itself in 1857. Both the district and the central exhibitions were continued for some years, but were discontinued in 1859 as a regular measure, though Madras still continued to display great activity in the matter of local exhibitions, the latest being the Paulghat Agricultural and Industrial Exhibition in 1867, and the Neilgherry Exhibition in 1869.

The Punjab followed next with an exhibition at Lahore in 1863, an exhibition which resulted in the establishment of the highly useful Lahore Central Museum.

In 1864 a central agricultural exhibition was held in Bengal at Alipore, followed by local exhibitions throughout the districts in 1865. In the same year an exhibition was organized at Nagpur in the Central Provinces, and in 1867 there followed the exhibition in the N.W. Provinces at Agra, and the agricultural exhibition at Akola in the Berars.

The presidency of Bombay had thus far remained behind the other provinces of India. The ambitious project of a great international exhibition at Bombay in 1866 was prevented by the financial panic of 1864-5. But since then there took place in 1868 the Bombay Art Exhibition, in 1868-9 the Broach Exhibition, in 1869 the Kurrachee Fair and Exhibition, and in 1873 another exhibition in Bombay.

Thus, with the exception of Mysore and British Burmah, there is no province in India in which exhibitions of some importance have not been held.

4. SCHOOLS OF ART, ENGINEERING COLLEGES, &c.

The schools of art and of engineering now existing in India have already begun to exercise considerable influence on the artistic and scientific education of the natives. The five schools of art at Calcutta, Madras, Bombay, Jeypore, and Surat deserve special mention. The Madras school is the oldest of the kind in India. The most important college for civil engineering is at Roorkee in the N.W. Provinces, founded in 1847. It has already rendered important services in the scientific and practical training of the natives, and in the creation and development of an Indian engineering literature. Engineering colleges on a smaller scale exist in Calcutta, Madras, and Poonah.

5. PROMOTION OF LITERATURE, &c.

Miscellaneous grants have been made from time to time in connection with literature, both by the Supreme Government of Calcutta and some of the local governments. These grants relate mainly to the following subjects :—

1. Purchase of oriental manuscripts, as, for instance, the purchases effected after the mutiny or on the occasion of the Persian famine. Independently of special purchases, the matter has been recently put on a regular footing in the Bombay Presidency, by the appointment of Drs. Bühler and Kielhorn with the mission to search for and purchase or transcribe the valuable manuscripts to be found within the limits of the presidency.
2. Publishing of works referring to India, either by a subvention or by the purchase of a certain number of copies.
3. Subventions and grants to various scientific and literary societies, such as the Asiatic Societies, &c., or to libraries in various parts of India.

B.—WORK REFERRING TO SCIENCE, ART, AND LITERATURE AT THE INDIA OFFICE.

The work on this side for the promotion of science, art, and literature in India may be referred to under the same heads as in Mr. Grant Duff's report to the Duke of Argyll in 1869 :—

1. Department of the Reporter on the Products of India.
2. The Librarian's Department.
3. The Geographical Department.
4. Miscellaneous grants and assistance afforded under the authority of the Secretary of State in Council.

1. DEPARTMENT OF THE REPORTER ON THE PRODUCTS OF INDIA.

The action of this department, in so far as it has a bearing on science, art, and literature, is directed to the following subjects. Full details regarding its functions in promoting a knowledge of the products and manufactures of India will be found in the papers hereto appended.

Department of the Reporter on the Products of India.

- a. India Museum.
- b. Exhibitions.
- c. Publication of works referring to India.

The Museum collections consist of—

(a.) India Museum.

1. *Economic products*, from the animal, vegetable, and mineral kingdoms, about 20,000 specimens.
2. *Models of machinery*, and illustrations of processes.
3. *Art manufactures*. Arms; jewellery; gold and silver work; general metal work in brass, &c.; *koftgari* and *bidri* work; jade, carved, jewelled, and enamelled; agate, inlaid marbles, and other mineral manufactures; pottery; carvings in sandalwood, ivory, and horn; papier-maché and lacquer work, &c.; and textile manufactures in every variety.
4. *Models and illustrations of the manners and customs of India*, and of native arts, sciences, and religion.
5. *Ethnological collection*, consisting of casts, photographs, &c.
6. *Archaeological remains, &c.*, consisting of models, drawings, and photographs of buildings, and of sculptures from Amravati and other parts of India.
7. *Zoological or natural history collection*, illustrating all the chief forms of animal life existing in India.
8. *Geological collection*.

The Museum is being utilized—

1. As a Museum of reference by placing in the hands of the Reporter on the Products of India the means of fulfilling his functions.
2. As a permanent exhibition promoting a knowledge of India on the part of the public.

3. As a means of supplying loan collections for exhibition in different parts of this country and occasionally in continental countries.

Since 1860, collections of Indian Art Manufactures, &c. have been exhibited at the following places:—At Manchester on four occasions; at Glasgow, thrice; Birmingham, thrice; Edinburgh, twice; Dublin, twice; Leeds, twice; Bolton, twice; Bradford, twice; and at Sheffield, Belfast, Preston, Pendleton, Wolverhampton, Derby, Wigan, and Deptford; also in Paris, New Zealand, and Moscow; and in London on numerous special occasions.

(b.) Exhibitions.

India has sent important contributions to each of the great International Exhibitions in Europe, namely, to those held in London in 1851 and 1862, and in the years 1871, 1872, and 1873,—to those held in Paris in 1855 and 1867, as also to the Vienna Exhibition in 1873, as well as to the smaller exhibition at Dublin in 1865, and the Workmen's International Exhibition in 1870. The organization and arrangement of all these exhibitions fell on the department of the Reporter on the Products of India, those which have taken place since 1862 having been managed by the present occupant of the post.

(c.) Publications referring to science, art, and literature.

Independently of the departmental publications referring to the arts and manufactures of India, and detailed in the paper appended, the photographic branch of the department has been engaged in the production of important works of literary and artistic value, such, for instance, as the work on "The Tree and Serpent Worship," by Mr. Fergusson, and the fac-simile reproduction of the great Sanskrit grammar "Mahābhāshya."

2. THE LIBRARY.

The library consists of four divisions:—

1. The general collection of printed books comprising about 25,000 volumes.
2. The gazettes, Government and law reports, and various collections of manuscript surveys and records,—upwards of 5,000 volumes.
3. Books kept in store, about 7,500 volumes, and the unbound books in Indian vernaculars.
4. The oriental MSS. (about 8,500 volumes), the illustrated books, and the coins.

Record Department.

Independently of the Library, there is the Record Department, which contains a large collection of materials of essential use for departmental purposes, as also for the study of the history and administration of the country.

3. THE GEOGRAPHICAL DEPARTMENT.

The Geographical Department.

This Department, since 1868, has been recovering from the neglect into which it had been allowed to fall. It is working in connection with the survey departments in India, keeps in custody original surveys maps published in India, facilitates their dissemination in this country, and carries out such work of a geographical character as the Secretary of State or the other departments may require. The report above referred to supplies additional particulars on the functions of this department.

4. MISCELLANEOUS GRANTS, &c.

Miscellaneous Grants, &c.

The yearly grant of 200 guineas to the Royal Asiatic Society in London comes under this head, as also the expenditure in connection with the publication of the "Flora Indica," by Dr. Hooker, and other items of less importance.

Part III.

Description of the various modes of utilizing the Museum and Library Collections.

It is necessary to define the various purposes to which the collections in the hands of the Government can be put, before considering how far the present means and present arrangements are suited to these purposes, and whether other measures are required for securing their efficient fulfilment.

In the first place the Museum and Library collections contain a vast accumulation of materials calculated to be of great use in inquiries regarding almost every aspect of Indian questions past and present, and a great deal may be done in the way of arrangement so as to make the collections convenient for reference by persons engaged in researches relating to India. Not only is it possible to materially assist the researches of independent investigators, but there is also a field in which the curators of such collections become themselves the investigators, and are naturally the most suitable men for the purpose. Promotion of original investigation.

Secondly, the collections can be so arranged as to exhibit the final results of scientific inquiry, whether carried on by Government or by private investigators, and to present in a systematic and telling manner a picture of the country both as regards its present and past condition. In this manner the collections become works of reference on all Indian subjects. Representation of results.

These two functions provide for the acquisition of knowledge and for a thorough representation of what has been acquired. But all this knowledge is as good as buried so far as the people generally are concerned, unless methodic steps are taken for making it available for the use of the community at large. This object has usually given place to the desire of acquiring fresh information; the efforts to utilize information when once acquired have been insignificant. The very thing which renders acquired knowledge useful, viz., its dissemination amongst those interested in its practical application, has been mostly left to chance. Dissemination of information.

Each of the three modes of utilizing museums and libraries now indicated requires to be touched upon in some detail.

I. PROMOTION OF ORIGINAL RESEARCH.

The function of well-managed museums and libraries in promoting original research, and the extent to which it becomes the duty of the curators of public collections to undertake such research, should be clearly defined. It may be held as a cardinal proposition that their primary duty is not so much to undertake the investigation of special subjects themselves as to facilitate the investigations of others. It is of course highly desirable that the curators and other officers entrusted with the management of the collections should be men of scientific and literary attainments, and their scientific activity should be encouraged, but it would nevertheless be a misuse of the collections, and contrary to the spirit of public institutions, if they were made mainly subservient to the special researches which those officers may have taken up themselves. The public utility of such collections depends upon the care and skill with which they are preserved and arranged so as to facilitate the work of independent investigators. The conditions which insure this object are in part those simply of space and locality, and of skill in exhibiting and preserving the specimens, and in part they are the measures taken for rendering possible an easy and full reference to the materials bearing on any particular subject. They may be discussed under the following heads:—

(a.) *Proper exhibition of articles or specimens.*—The elementary requirements are sufficient space and light, and suitable accommodation in the way of cases, fittings, and other exhibiting appliances. The proper exhibition of almost all the articles in such a manner as to economize space and appliances, and to exhibit their characteristic features, is a matter requiring considerable skill and experience. Each article should if possible be made to tell its own story. It suffices to point to minerals, vegetable raw produce (such as seeds, grains, and fibres), natural history specimens, works of art, and photographs, to realize the different conditions under which these classes must be exhibited so as to make them useful to persons consulting the collections.

Note on the actual conditions at the India Museum and Library.—In the fundamental requirement of space, both the Museum and Library are lamentably deficient, to say nothing of the inconvenience occasioned by their being placed in the attics of a high building. In the case of the Museum, certain large collections cannot be exhibited at all, while those which are exhibited are under unfavourable conditions. Equally deficient with space for exhibition is that for working rooms.

As regards the means of arriving at a proper and characteristic exhibition of specimens, very considerable experience has been accumulated during the arrangement of the present Museum, and during the many exhibitions organized by the department.

Some sections of raw produce are already exhibited in a manner which many regard as a model, but neither the present space nor the present fittings allow of the full introduction into practice of the experience which has been acquired.

(b.) *Preservation of the articles.*—Skill shown in the exhibition of the specimens must be looked at from another point of view:—care must be taken that their permanent preservation is insured. Without great care at the beginning, and systematic attention subsequently, collections of all kinds,—books, manuscripts, animal and vegetable produce, fabrics and textiles,—perish rapidly. This takes place even in our climate, but in India the ravages of insects, especially of the white ants, are still more to be dreaded. Collections are constantly being rendered valueless from want of management in this respect. For instance, of the large number of collections of Indian raw produce resulting from the exhibitions of 1851 and 1855,* which were distributed by the East India Company, scarcely any now remain.

Note.—Special study has been devoted to this subject at the India Museum, as the usefulness of the trade museums, referred to in Part I. and described in Appendix A., depends so much on the proper preservation of the specimens. In the building of a museum care should be taken to provide a hot-air chamber, the articles passing through which would be freed from insect life. In the fittings, cases, bottles, &c., great attention should always be devoted to the fixing, and to numerous other precautions against rot, decomposition, dampness, and insects.

Precautions against fire, especially in case of a unique collection, such as that of the Oriental MSS. at the India Library, should also be carefully taken.

(c.) *Accessibility and easy reference to each individual article.*—The two former conditions refer more especially to the preparation and preservation of specimens. The point now to be considered refers to the arrangement and grouping of the specimens in such a manner as to enable observers to discover promptly any required article, and all that relates to it. A proper system of naming, labelling and numbering, and the preparation of proper indices, arranged numerically, alphabetically, or according to subject-matter, fall under this head. The facts bearing on the identification of the article, and showing its origin, the place where, the time when, the person by whom, and the circumstances under which it was collected and presented to the Museum or Library, must be of easy access. Many collections suffer in their value and instructiveness from want of information of this character.

(d.) *Classification and preparation of systematic catalogues.*—Arrangements which thus permit easy reference to each individual article may be entirely empirical, and indeed are always so at first; but a higher stage in the organization of collections is reached when the whole of the materials contained in them have been surveyed and sifted, and so arranged that everything which bears on a particular subject, or refers to a particular question, is brought together in methodical order. Whilst an empirical classification merely affords an opportunity of easy reference to individual articles, a systematic classification enables the investigator to survey readily the materials of an entire group.

* Amongst others, to the following places:—York, Birmingham, Portsmouth, Norwich, Ipswich, Stoke-upon-Trent, Warrington, Dublin, Cork, Belfast, Edinburgh, Aberdeen, Philadelphia, New York, Paris, Berlin, Wirtzburg, Stockholm, Erlanger, Copenhagen, &c.

As a matter of fact, almost all collections, museums, and libraries are in a state of constant transition from an empirical to some systematic classification. The latter depends entirely on the point of view from which the collection is to be regarded, and as this varies with the new questions which arise, the classification must change. There is indeed a constant change in the system of classification. For many classes of objects there is as yet no fixed or settled system; in fact outside the natural history and other strictly scientific collections, arranged according to natural orders, there is hardly such a thing as a completely satisfactory system, and we have to be content with a chronological or some other one-sided arrangement. This subject will be hereafter alluded to, and it will be shown that the best solution is to adopt several distinct classifications, and to make a similar article appear several times, but each time in a different connexion, and illustrating a different matter. For instance, a metal vessel may be alike instructive as a manufacture, as a work of art and design, as an ethnological specimen, and as illustrating some point in mythology, and in cases where either duplicates or specimens of a similar character are available, one such should appear in each group.

A systematic classification is a highly scientific labour, and frequently proves to be an acquisition to our scientific knowledge. In this manner such institutions as museums and libraries themselves contribute to the elaboration of scientific results. A really good catalogue should be much more than a mere string of names, which is of little use to visitors if the specimens are properly exhibited and labelled, while to the student it is often altogether useless. A really useful catalogue should possess,—

- (1.) A systematic classification.
- (2.) A condensed description of the article, accompanied, if necessary, by drawings and illustrations.
- (3.) A history of the specimen, its origin or place of production, &c.
- (4.) A reference to the literature of the article.

Note on the actual condition at the India Office and in India.

1. AT THE INDIA OFFICE.

- (a.) **India Library.**—A plan for cataloguing the Oriental MSS. was submitted and sanctioned in December 1869. The catalogue of the Sanskrit MSS. will be ready for the press by Christmas 1876, that of the Arabic MSS. is being printed, and that of the Persian MSS. will be taken in hand this summer. The catalogue of the Siamese MSS. is ready, and that of the Burmese is progressing. For the cataloguing of the Javanese and Kawi MSS. negotiations are in progress with competent savants in Holland. The catalogue of the Chinese books was printed two years ago.

A new catalogue of the printed books is urgently needed, the additions made to the Library since 1851 having been as yet merely entered in manuscript in the printed catalogues. If the requisite space be obtained for expanding and re-arranging the Library, a plan is to be submitted for the speedy cataloguing of the printed books, both in European and Oriental languages, on a more scientific and more synoptical method than that now in use.

- (b.) **India Museum.**—A catalogue of the natural history collection was commenced by the zealous naturalist Dr. Horsfield, the former Keeper of the Museum, and, with the assistance of Mr. Frederic Moore, 6 vols. have been produced, embracing the mammalia, birds, and insects. The expediency of completing these catalogues has from time to time been brought under notice, and it is hoped that something may now be done for effecting so desirable an object. Several other catalogues of groups existing in the natural history section of the India Office Museum are likewise wanted. As regards fishes, the materials here are very scanty, but Dr. Day, as Superintendent of the Fisheries of India, is engaged on a work on the fishes of India, of which he has got together a large collection. With regard to other productions, the only group in the Museum for which as yet an efficient analytical account exists is that of the textiles, to which the work on Textile Manufactures, published in 1866, refers. The materials for the produc-

tion of a series of illustrated works, which would also act as *catalogues raisonnés* to the Museum collections, have, however, been accumulated, and are awaiting a favourable opportunity for having proposals submitted for turning them to account. Among publications promoting the utilization of the collections may be mentioned the index to the native and scientific names of Indian and other Eastern economic plants and products, as also a products-list, giving the scientific and native synonyms of upwards of 7,000 Indian products.

In addition to the cataloguing work done at the India Office, mention must be made of the "Flora Indica," which is in course of preparation under Dr. Hooker's direction at Kew.

2. CONDITION IN INDIA.

Calcutta Museum.—The following is a list of the catalogues of the collections of the Asiatic Society, published before the commencement of the arrangements for their transference to the new building, which is expected to take place in the course of the next two years:—

1. Catalogue of birds and mammals of Bengal, by E. Blyth, 1849 and 1853.
2. Catalogue of reptiles, by W. Theobald, 1868.
3. Catalogue of shells, by W. Theobald, 1860.

In addition to the above, there is the "Palæontologia Indica,"—edited by Dr. Oldham, the Director of the Geological Survey,—which has appeared in parts issued yearly from 1861 to the present time.

Victoria Museum.—The only publication of the nature here spoken of is the valuable "Catalogue of the Economic Products of the Presidency of Bombay," prepared by Dr. Birdwood.

Lahore Museum.—The Punjab has in this, as in so many other matters, taken a leading part. Mr. Baden Powell's systematic and descriptive illustrated catalogue of the Raw Products and Manufactures contained in the Lahore Museum is an excellent work, referring chiefly to the productions of the Punjab.

Madras Museum.—No really systematic and descriptive catalogue exists. To a certain extent the Cyclopædia of Balfour refers to and is based on the collections of this Museum, but the uncritical and confused character of the compilation deprives it of the usefulness which such a bulky work, containing accumulations from so many good sources of information, might be expected to afford.

(e.) *Maintenance of the collections up to the level of existing knowledge.*—Museums and libraries require to be constantly supplemented by materials bearing on recent acquisitions in science, as without these such institutions would be deprived of much of their usefulness.

The increase of the collections is effected by---

- (1.) Purchase.
- (2.) Donations.
- (3.) Exchanges with other scientific institutions.

(f.) *Opportunity for experimental investigation.*—A museum containing classified specimens of economic products offers favourable opportunities for investigations into their economic value. Such investigations may either be carried on by the museum authorities themselves or by other officers specially charged with this duty by Government, or they may be carried on by private investigators, assisted by the museum authorities.

II. EXPOSITION OF THE RESULTS OF SCIENTIFIC INQUIRY.

A museum which is simply a collection of materials is merely useful to the *savant* whom it supplies with matter for research. It becomes useful to the general public, to the practical man, and to the statesman, when it gives on every subject capable of illustration by the collection, a full but concentrated

exposition of all the results of scientific work on that subject. At the root of success in such an endeavour is a clear perception of the various features of the country, which require separate representation. The artistic, the economic, and the scientific picture of the country must be kept separate from each other, and the objects illustrating each must be appropriately arranged. This fundamental truth is not yet sufficiently acted on. Many museums here and in India are still rather miscellaneous collections, illustrating nothing in particular, than representations of the important features of a country.

In the case of the India Museum and Library, the features of India which are thought capable of illustration by their contents are roughly as follows :—

A.—THE COUNTRY AND ITS RESOURCES.

(1.) PHYSICAL FEATURES :—

Boundaries and administrative divisions.
Orography.
Hydrography.
Meteorology.

(2.) NATURAL FEATURES AND PRODUCTS :—

Geology and Mineralogy.
Soil.
Flora.
Fauna.

(3.) ECONOMIC VIEW :—

Raw produce, mining, agriculture, forestry, &c.
Manufactures.
Tools, machinery, processes.
Locomotion by land and water.
Harbours, lighthouses, docks, warehouses, fairs and markets.
Banks, currency, &c.
Coins, weights and measures.

B.—THE PEOPLE AND THEIR MORAL AND MATERIAL CONDITION.

(4.) ETHNOLOGICAL VIEW :—

Races.
Castes and religious sects.
Population and vital statistics.

(5.) DOMESTIC AND SOCIAL ECONOMY :—

Food and cooking.
Houses, buildings.
Clothing and personal decoration.
Manners and customs.
Health and sanitation.
Education.
Religion.
Fine and decorative art.
Science and literature.

(6.) HISTORICAL AND ADMINISTRATIVE VIEW :—

Philology.
Archæology.
Mythology.
Historical geography.
Political and administrative history.
Current administration.

The means which may be adopted for representing these various features of India are ample. The most important are the following, which may be used either singly or together :—

- (a.) *Actual article or specimen.*—For instance, raw produce, manufactures, art, and archæology allow of representation by actual specimens to a large extent.

- (b.) *Models or casts.*—Objects, which from their bulk, fixity, or perishability cannot be shown in the originals, may be shown in models made to scale. As examples may be instanced, relief maps of India, models of fruits and vegetables, ethnological models, architectural models, &c.
- (c.) *Photographs, illustrations, drawings, &c.*—Many objects which could not be easily represented by models may be perfectly represented by these means.
- (d.) *Maps.*—This refers not only to the topographical and political maps, but to cartography in its most extended meaning, and includes geological maps, and maps showing the geographical distribution of natural products or economic characters.
- (e.) *Tabular statements, and their graphical representation by means of diagrams, &c.*—Statistics, and other statements, such as the results of comparative chemical analysis or of physical experiments, may be represented in tables or diagrams.
- (f.) *Description and labelling, &c.*—Every other mode of representation will have to be supplemented by description. There is nothing which more enhances the value of a collection than a thorough system of group and individual labelling, with condensed descriptions attached to each specimen. Catalogues are rarely referred to in looking at a collection, and are mainly useful for occasional after-reference. In a well-arranged museum each specimen with its label should tell its own story.
- (g.) *Books, manuscripts, literary references.*—As regards literature, the books themselves are the articles which exhibit its condition. Literature is at the same time an important and in many instances the only source of knowledge with regard to every subject in the list above given.

It will now be well to examine in detail the foregoing list, enumerating the features of India which require separate representation, and showing under each heading—

1. The practical object with which the representation is undertaken ;
2. The modes of representation which will secure an efficient exposition of the leading features of the subject ;
3. The material resources of the Museum and Library available for the purposes of illustration ;
4. The resources of the Department of the Reporter on the Products of India for carrying out the programme indicated under the second of the above headings.

A.—THE COUNTRY AND ITS RESOURCES.

1. THE PHYSICAL FEATURES OF INDIA.

The headings of *boundaries* and *administrative divisions*, the *orography* and the *hydrography* of the country may be classed together in considering (1.) the practical object with which the representation of this group is undertaken. The great surveys which bear on this subject were originally undertaken with the object of providing the civil administration and the Military Department with a correct outline of the country. In fact, the revenue district maps and the military march-routes were the first materials at hand. That commerce and other provincial interests must benefit by a correct knowledge of the geography of the country, is obvious. In all public works, such for instance as railways, it is the general map which indicates to the engineer the main direction, and he restricts his own more detailed surveys to the one or more routes indicated to him by the general features of the country recorded in the map.*

* The Report on the Moral and Material Progress of India, by Mr. Markham, last issued, cites an instance which shows the practical value of accurate surveys on scientific principles. The agent of the Bombay and Baroda Railway entirely changed the line of route for the Katiwar branch on receiving the new sheets of the Katiwar series of the Trigonometrical Survey, which corrected the gross inexactitudes of the former maps.

The *modes of representation* (2.) are not so numerous in this class as in most of the other classes. Taking them in the order enumerated at pp. 35, 36, the following are the materials required for effecting the objects which come under this head:—

- a. *Actual articles*—Such as the instruments and tools used in carrying out the Surveys.
- b. *Models or casts*.—The relief map of India, originally executed by Mr. Montgomery Martin, and since reproduced by the Museum Department, comes under this head.*
- c. *Photographs, illustrations, drawings, &c.*—Under this head, it may be mentioned that the photograph of the relief map above referred to gives a very striking representation of the topography of the country, of its mountain chains, its plains and its watersheds. It may be added that landscape illustrations frequently afford important contributions to the geography of the country when they faithfully represent peculiarities of local configuration which cannot, with any distinctness, be introduced into maps, and in this manner they assist in popularizing geographical knowledge, and frequently prove of great help to the student. The interesting series of chromo-lithographs prepared from the Schlägentweit drawings and photographs of the Himalayas has been carried out on scientific principles.
- d. *Maps*.—These constitute the greater portion of the available materials. The sheets of the Indian Atlas, containing all the results of the Trigonometrical and Topographical Survey are the most important of the resources under this head. The revenue and settlement maps likewise supply an immense amount of detailed materials regarding particular districts, towns, and villages. The marine surveys, and the nautical maps of harbours, estuaries, and coasts ought also to be mentioned. A complete catalogue of all the maps existing which bear on India, and which are accessible in the Geographical Department, is in course of preparation by Mr. Saunders.
- e. *Tabular statements and diagrams*.—Records of altitudes (such as the Tables of Heights observed by the Great Trigonometrical Survey), military march-routes, roads, tabular statements recording latitudes and longitudes for various places, observations on the tides, drawings showing sections through various parts of the country, all fall under this head; and other material exists which might be easily made available, such as the profiles showing the configuration of the country traversed by the railways, &c.
- f. *Descriptions*.—The descriptions under this head embrace only such condensed notes as are necessary to explain the full meaning of the articles alluded to under the previous headings.
- g. *Books, MSS., literary references*.—The Library contains under this head a great accumulation of materials, such as travels, scientific expeditions, surveys—many of which are only in manuscript, and have not hitherto been utilized to their full extent.

Meteorology.—The practical object in prosecuting meteorological inquiries in India is threefold: first, in order to study the influence of the seasons on agriculture, especially with regard to indications of drought and distress, and as a guidance in the carrying out of irrigation works; secondly, as one of the most important elements for determining the sanitary condition of the country; and thirdly, as a means of preventing shipping disasters by a study of storms and cyclones, which might lead eventually to a system of storm warnings and signalling. The Indian meteorological observations may become of the highest scientific importance. The means of representing the results are as follows:—

- a. *Actual article or specimen*.—The instruments used in the Indian meteorological observations.

* This relief map fairly represents the information existing at the time it was made. Since then much valuable material has been accumulated which would render it possible to prepare a considerably superior map of the kind. The present map, however, notwithstanding certain imperfections and some errors, affords a most instructive view of the configuration of the surface of India.

- b. Models or casts.*—Nothing available for representation under this head.
- c. Photographs, illustrations, drawings.*—These are of very restricted application in meteorology, though some of the atmospheric phenomena, as clouds, &c., are capable of illustration.
- d. Maps.*—Cartography affords the most striking means for a condensed representation of meteorological results. Maps showing the isothermic and isodynamic curves, the distribution of rain, the lines of equal barometric pressures, and the directions of the wind, and other illustrations of the same nature, recording, for instance, the magnetic observations, &c., may be here referred to. The materials actually existing are scanty, though important contributions may now be expected from the recently appointed Meteorological Reporters.
- e. Tabular statements, and their graphical representation by means of diagrams.*—The tabular statements issued by the various meteorological stations contain all the numerical data yielded by the original observations. With regard to the graphic representations of meteorological results it may be remarked, that while all static phenomena may be recorded by maps, all the dynamic phenomena, such as the diurnal, monthly, or annual changes of temperature, pressure, moisture, and other meteorological elements, can only be satisfactorily represented by diagrams. Neither of these methods is as yet sufficiently used in India; and it should be remembered that, both for the public and for the scientific man, the meteorological results are, as a rule, only useful if brought into such a shape.
- f. Descriptions.*—Condensed notes explaining the maps and diagrams.
- g. Books, MSS., literary references.*—Most of the literature on this subject is included under *e.*, embracing the records of all the systematic observations. The books which fall under this head are either works bearing on the science of meteorology and its practical applications, or miscellaneous works of geography and travel, containing references to meteorological questions.

2. THE NATURAL FEATURES AND PRODUCTS OF INDIA.

Although each of the four headings belonging to this group—Geology and Mineralogy, the Soil, the Flora and the Fauna—will require separate representation, they are so much alike in their modes of representation that they may be here treated together.

The practical object which has led to inquiries of this character has in all cases been the desire to obtain a full knowledge of the country, with a view to the commercial utilization of this knowledge. This motive prompted the East India Company to appoint naturalists, to establish botanical gardens, and to undertake the Geological Survey; and the same motive has led more recently to the creation of the Forest Department and to the appointment of an Inspector of Fisheries, each of these steps, although undertaken for an immediate practical purpose, having also a tendency to lead to an increase of our scientific knowledge of India. It may be added, however, that perhaps the greater part of our knowledge of the botany and natural history of India is not so much traceable to the action of the Government, as to the scientific zeal of a considerable number of the officers of the Company and of the Government.

The modes of representing results in the case of the above classes are ample.

- a. Actual articles or specimens.*—The greater number of the objects belonging to the above-named groups can be either entirely or partially exhibited by means of actual specimens. With regard to geology and mineralogy the Museum does not come up to the level of the existing knowledge of India. Though possessing some special collections of considerable value, they are too fragmentary to give a view of the geological features of the whole of India. The gaps, however, could be easily supplied from the duplicates and stores of the Geological Survey Museum at Calcutta. As regards soils, a collection exists here, which though inconsiderable when compared with the magnitude of the country, is nevertheless probably the most extensive one which has had the advantage of having been thoroughly examined

and analyzed. The botanical collection in possession of the India Museum, with the exception of the economic products referred to in another class, is insignificant, as the Indian Herbaria have been sent to Kew. Something ought to be done for supplying this want, as even for economic purposes a reference to systematic botany is in many cases expedient. If a proper museum were once erected, *donations* alone might in time prove sufficient. The natural history collection in the possession of the Museum, though not exhibited from want of space, is of considerable extent and importance from the number of typical specimens which it contains.

- b. Models or casts.*—Fruits, vegetables, and various natural history objects are represented in this manner, supplementing the want of actual specimens.
- c. Photographs, illustrations, drawings.*—A very large collection of materials of this description exists at the Museum, embracing manuscript drawings together with a large collection of wood blocks of various economic plants, and products, &c. Photographs, pictures, or drawings of the outward appearance of the article are of great use where actual specimens are wanting, whilst as regards the representation of internal structures they are the principal resource.
- d. Maps.*—The use of maps in order to show the geographical and even statistical distribution of the various natural products has hitherto been far too restricted. The only systematic series of this kind is afforded by the Geological Survey Maps.
- e. Tabular statements and diagrams.*—Under this head come tables showing the chemical composition and physical properties of minerals, soils, &c.
- f. Descriptions.*—A complete description should accompany each specimen. The importance of conveying as much information as possible with the article itself has already been insisted on.
- g. Books, MSS., literary references.*—The literature on the subjects coming under this head is abundant; it is partly to be found in the Library and partly in the Department of the Reporter on the Products of India.

3. ECONOMIC VIEW.

The object which the Government had in view in accumulating the materials which by their combination produce a picture of the economic condition of India, was threefold. There was, first, the practical object of promoting commerce, arts, and manufactures; secondly, the administrative object of obtaining data, which whilst they recorded the working of the administrative mechanism, frequently also threw light on the state of agriculture, such as the settlements and land revenue reports, or on commerce as do the Custom House returns; and, thirdly, the collection of many statistical facts was called for, either by the Government of India, or by the Parliament at home, with the political object of enlightening the Government and the public as to the effects of some particular policy. Inquiries and statistics undertaken from these various motives resulted in the collection of a very considerable amount of material illustrating the economical condition of India. How far this material may be made useful in promoting the agriculture, commerce, and manufactures of the country is a question which has been already discussed. The question treated in this paragraph refers only to the extent to which the existing materials are sufficient to give a perfect representation of India from an economic point of view.

The first three items under this head, viz.—

*Raw produce, mining, agriculture, and forestry,
Manufactures,
Tools, machinery, and processes,*

may be considered together, as they all specially refer to production, whilst the remaining items mainly deal with the purely commercial aspect of India.

- a. Actual article or specimen.*—Almost everything in the India Museum affords an illustration of one or other of the groups which come under this head. The mere collection of the economic raw products of India from the

mineral, vegetable, and animal kingdoms embraces about 20,000 specimens. There is in addition to this a *reference collection* of about 5,000 systematically arranged specimens of the economic products of other parts of the world as well as of India, and this is of much use in identifying new products, and in affording the means of comparing them with those of other countries. The collection of agricultural tools and other appliances used in the common arts and manufactures of the country is extensive. Whilst the collection of specimens of manufactures, more especially of art manufactures, is very rich as regards textiles, arms, metal and stone work, &c.

- b. *Models, casts, &c.*—The numerous articles falling under this head are mainly supplementary to the collection of raw produce, and to that of agricultural and other tools, instruments, machinery, &c.
- c. *Photographs, drawings, illustrations, &c.*—A very considerable collection, chiefly of photographs, bearing on this section is being accumulated and filed in regular volumes. This collection consists partly of photographs taken in the photographic branch of the Reporter's Department, and partly of photographs coming from India or from other sources. The chromolithographic representations of textile fabrics executed in the department deserve special mention. The collection of wood-cuts referring to products is also being systematically increased. Many drawings by hand also bear either on economic produce or on tools and machinery used in agriculture, arts, and manufactures. A rapid increase in the photographic, chromolithographic, and lithographic representation of such specimens as may be required for the illustration of the various groups of art and other objects, may be attained through the instrumentality of the photographic branch of the department, as soon as certain work now in hand is cleared off.
- d. *Maps.*—The use of cartography as a means of representing the economic condition of the country is capable of very extended application. The geographical and statistical distribution of products; the natural basins of production; the channels of trade; the range of prices, &c., are all capable of being represented in this manner, which is the only one in which statistical investigations have any chance of becoming intelligible and popular. Almost everything under this head remains still to be done, and this remark applies with equal force to the next two headings.
- e. *Tabular statements and diagrams, and f. Labelling and descriptions,* giving the information which should accompany and explain the actual articles, or their models, or other illustrations. The proposals for the carrying out of an Industrial Survey of India refer mainly to the full supply of information of this character, and three sources are therein pointed out from which the information may be drawn; these are (1) the collection of classified papers and various documents contained in about 3,000 record boxes already in the department, (2) the digest of all the past and present records and publications, and (3) local information from India, to be obtained by means of Committees appointed in each district.
- g. *Books, MSS., and literary references.*—The books and MSS. bearing on the economic condition of India are contained partly in the Department of the Reporter on the Products of India and partly in the Library. A collection of about 1,300 volumes referring more directly to products have been transferred from the Library to the Reporter's Department, which also contains the administration returns, and other publications—Indian, English, and Continental, bearing on products, commerce, and manufactures. The Library itself, however, still contains a considerable number of books which incidentally refer to the same subjects. It also contains complete sets of all the Government publications, and copies of the Government Gazettes, now the medium through which a great deal of economic information is periodically published. Several MS. Surveys referring to various parts of India are likewise deposited in the Library.

The remaining headings of this group refer to the arrangements by means of which commerce is carried on, such as,—

Locomotion by land and water.

Harbours, lighthouses, docks, warehouses, fairs and markets.

Banks, currency, &c.

Coins, weights and measures, &c.

The following modes of representation may be adopted,—

- a. *Actual articles and specimens.*—This mode of representation applies to this group only to a limited extent. The splendid collection of coins in the Library, however, and that of weights and measures in the Museum, constitute in some measure an illustration by actual specimen.
- b. *Models and casts, &c.*—Numerous models of carts, conveyances, boats, &c. exist in the Museum. The remarkable aptitude shown by many of the native artisans for work of this class might be taken advantage of for the purpose of representing some of the difficult engineering works.
- c. *Photographs, drawings, illustrations, &c.*—By these means a very exhaustive representation of the public works carried on in India might be obtained, and probably a great number of photographs and drawings bearing on this point are already in existence in various public and private offices. Those already belonging to the Museum and Library are too few to give a fair notion either of the old native public works, or of those carried out under the auspices of the present or late Governments.
- d. *Maps.*—Maps showing the facilities for locomotion—railways, canals, roads, steam-vessel communication, telegraphs, &c.—already exist to a certain extent, but might be made to embrace a considerably greater number of useful details.
- e. *Tabular statements and diagrams, and f. Labelling and descriptions.*
Large accumulations of material, awaiting condensation and elaboration, are available for this purpose.
- g. *Books, MSS., and literary references.*—The Library and the Department of the Reporter on the Products of India contain a very considerable number of books and MSS. referring to the subjects of this group.

B.—THE PEOPLE OF INDIA AND THEIR MORAL AND MATERIAL CONDITION.

The whole of this group stands in intimate relation with the group previously described,—the one representing nature, the other man. The one shows the resources of the country, the other the final benefit which the people derive from them; the one shows permanent features dependent upon the unalterable conditions of geographical position and climate, the other the mutable features growing out of the development of the people and the state of civilization attained. Whilst a knowledge of the country, of its products, its agriculture, and its arts and manufactures, supplies the physical basis for government, a knowledge of the character, customs, and manners, and the religious and philosophical aspirations of the various races inhabiting India, supplies the means of obtaining a moral hold upon them. The practical importance of this latter knowledge is thus quite as great as that of the former, although it is not capable of being weighed, measured, or expressed in a money value. The administration of India was put on a rational basis only from the time when Elphinstone in Bombay and Thomason in the North West Provinces began to look for guiding principles, not in abstract rules of political science and political economy, but in a conscientious study of the people, of their social organization, and of their ideas of right and justice. Since then the conviction has more and more been gaining ground that all legislation and administration should take into account the local and traditional habits and feelings of the people, in so far as these do not interfere with the political necessities of our position, or with those higher ideas of morality and justice which it is our duty to foster.

4. ETHNOLOGICAL VIEW.

Ethnology in its wider sense embraces nearly all the headings in this and in the succeeding two classes, as there is no domestic habit, or historical event, or literary production which may not also be considered ethnologically, that is, in the relation which it bears to race. It would nevertheless be obviously admitting too wide a definition of ethnology if all the subjects included under the domestic and social view, and under the historical and administrative view, were included in it. Sufficient attention will be secured to it if in the arrangement of the last-named groups, constant reference is made to distinction of race, without making that distinction the principle of arrangement.

Under the group of ethnology proper will mainly be included descriptions of the physical and moral characteristics of the various races and tribes, whilst domestic and social habits, or language and literature, if not shared by other races, will be only referred to when they supply some striking or distinctive mark of the race, especially in the instances in which they possess an archæological or historical character. The relation of this group to the following one is about the same as that of all natural products to the economic raw produce. In its wider sense, the scientific series of natural products embraces all economic products as well, but practically it is sufficient if it contains only those specimens which distinctly characterize the different natural orders and species, without entering into all the *minutiæ* which an economic representation of the same product requires.

As regards the means of representation, this group is dependent on literary materials to a greater extent than any of the former ones.

- a. *Actual article or specimen.*—Characteristic specimens of dress, domestic utensils, arms, charms and amulets, &c. Attention should be given to the acquisition of a collection of characteristic crania.
- b. *Models and casts.*—The Schlagintweit collection of 350 facial casts, as also many of the small models existing in the Museum, representing the various races and castes of India, are available under this head.
- c. *Photographs, drawings, illustrations, &c.*—The materials under this head are ample, and yearly increasing. The photographic representation of the principal races inhabiting India contained in the work on the "People of India," prepared at the photographic branch of the department, is the most complete in existence, although it cannot pretend to any strictly scientific character, such as would attend a similar collection if an Ethnological Survey were carried out.
- d. *Maps.*—The census returns give the means, to a certain extent, of producing ethnological maps showing the geographical and statistical distribution of the various races. The subject is very difficult,—more so than is commonly supposed when languages are taken as the sole characteristic of race. From the extraordinary mixture of races and castes in India, a cartographic representation requires much skill and consideration, except in the case of a few compact homogeneous communities.
- e. *Tabular statements and diagrams.*—Foremost in value are the census-returns, in which a good deal of attention is devoted to the ethnological divisions of the people. Exact measurements and exact determinations of all physical characteristics fall under this head. The administration returns of some of the provinces contain certain materials bearing on this point, such as the height and weight of members of the police, arranged according to their race or caste. The prison and sanitary returns, showing the race peculiarities with regard to crime and to disease, also contribute interesting ethnological information. Exact measurements, however, of crania and of other parts of the body are as yet few in number and it is impossible to obtain a system of scientific ethnology without such facts.
- f. *Description and labelling.*—The materials bearing on the preparation of condensed descriptions are very numerous, though deficient in exactitude and precision, most of the ethnological descriptions rather embodying mythological and heraldic fables, or giving expression to the individual predilections of the writer, than containing data from which an impartial judgment might be formed.

- g. Books, MSS., and literary references.*—The Library, especially in its collection of the various periodical publications of the Asiatic Societies, contains ample materials on this subject.

5. DOMESTIC AND SOCIAL ECONOMY.

Food and cooking.
Houses and building.
Clothing and personal decoration.
Manners and customs.
Health and sanitation.
Education.
Religion.
Fine and decorative art.
Science and literature.

It is interesting to compare this group with the third, giving the economic view of India. A very considerable number of identical articles is contained in each, but arranged in a different manner. In the economic view the illustration of *the production* of the article is the leading idea, whilst here it is *the use* of the article which is exhibited. Thus in the first series the article is shown in connection with others which have either a common natural origin, or to which a similar method of manufacture is applied, whilst in the present series all articles having the same function are classed together and exhibited amidst their usual domestic surroundings. In this manner the second view becomes as instructive to the consumer as is the first to the producer.

The same general remarks apply to all the headings belonging to this group, although almost every one will require separate representation and a different principle of arrangement. Thus art manufactures, which will be classed according to function in the section referring to dress and personal ornamentation, or in the representation of the interior arrangements of houses, will have to be arranged according to styles and varieties of design in the section referring to the fine and decorative arts.

- a. Actual article or specimen.*—Most of the articles exhibited under the economic series find their places here also. It is to be remarked, however, that all the numerous specimens of the raw produce used in the arts, but which in their unworked shape are not used as articles of consumption or actual use, do not enter into the domestic series, which on the other hand contains the various modes of preparation of the article for domestic use, such as the arts of cooking and of dress, which, not being manufacturing processes, are excluded from the economic series.
- b. Models and casts, &c.*—Almost the whole of the clay, wooden, pith, ebony, and ivory models for which India is so well known, and of which the Museum contains numerous specimens, are illustrations of various domestic customs and manners.
- c. Photographs, drawings, illustrations.*—As a means of representing both exteriors and interiors of buildings and habitations, or for representing various social usages and rites, marriages, and religious ceremonies, &c., photography affords inexhaustible resources.
- d. Maps.*—The use of cartographic representation is very restricted in this group.
- e. Tabular statements and diagrams, &c.*—Dietary tables, statistics referring to the manner in which the people are housed and clothed, educational and sanitary statistics, &c. may be represented in this way.
- f. Descriptions and labelling.*—The task is easier in this group than in many others, inasmuch as a considerable portion of the articles refer to usual life, and explain themselves. Full descriptions, however, in this group can hardly be prepared without a preliminary elaboration of the economic and ethnological series.

- g. Books, MSS., and literary references.*—The materials bearing on education, habits, manners, religion, science, and literature are largely to be found in books. The Library contains all the available materials on this subject, and the section of it which refers more particularly to science and literature, as now existing in India, is being kept up under the rule which makes it obligatory to forward a copy of every work published in India.

6. HISTORICAL AND ADMINISTRATIVE VIEW.

Philology.

Archæology.

Mythology.

Historical geography.

Political and administrative history.

Current administration.

The influence of historical studies on India may be considered from two points of view,—(1) as bearing on the past history of the country, on its old literature, science, and mythology,—and (2) as bearing on the historical development of institutions, of economical features, or of administrative arrangements influencing the present condition of the country. From either point of view it may be held that historical researches have indirectly exercised a very beneficial practical influence on the course of Indian affairs. The study of the old languages and the old literature, even apart from the assistance which it has afforded in helping to disclose the character of the ancient laws and institutions of the country, has indicated that natives of India form one of the intellectual races capable of the highest form of civilization. This study has engaged in favour of India the sympathies of the whole civilized world, and probably in some degree has indirectly contributed to make prevalent in England those principles of justice to the natives of India which at present are at any rate the only publicly recognised basis of the policy of England in India. The other kind of historical studies, those directed towards the elucidation of the actual conditions by tracing their historical development, have an immediate practical importance, as no problem of policy, commercial or other, or of administration, can be properly understood without an historical investigation.

The materials bearing on this group are mainly literary, and contained in the Library.

- a. Actual article or specimen.*—The collection of coins and inscriptions contained in the Library. Archæological specimens. The fine mythological collection of the Museum, &c.
- b. Models and casts.*—A large portion of the archæology, especially that referring to architecture, can be illustrated by casts or models. The Archæological Survey is likely to result in an accumulation of such materials.
- c. Photographs, drawings, illustrations.*—The India Museum already contains a numerous series of photographs bearing on architecture and antiquities, many of them being well executed and referred to scale. The Archæological Survey operations have already begun to contribute interesting materials, the reproduction of which has been partly effected in the section of the Reporter's Department devoted to such work.
- d. Maps.*—Very little exists at present. But historical geography, and political and administrative history, ought to make use of maps to a great extent.
- e. Tabular statements, diagrams.*—The voluminous returns and records of a statistical nature require much elaboration before the results can be exhibited in tabular statements or diagrams.
- f. Descriptions and labelling.*—This subject depends still on research to a considerable extent, many of the archæological specimens not being sufficiently identified as yet.
- g. Books and MSS.*—The greater part of the Library books and MSS. supply materials for this section.

III.—DISSEMINATION OF INFORMATION.

The final purpose of museums and libraries is the dissemination of information. The usefulness of such institutions is always directly proportionate to the number of new ideas or new practical suggestions which they bring into current use. Every measure therefore for promotion of enquiry, and for a thorough representation of all the results of enquiry, should at the same time be carried out in such a manner as to insure the widest publicity.

Dissemination of information is promoted by—

The representation of results and not merely of raw materials for information.

The preparation of catalogues.

Preparation of typical collections and their subsequent multiplication.

Loan collections.

Lectures, publications, &c.

This report and the papers on the Industrial Survey of India, the part of which referring to trade museums is given in Appendix A., deal with this subject, and it will be sufficient to refer to them.

APPENDIX A.

EXTRACT from Part I. of MEMOIR on the INDUSTRIAL SURVEY of INDIA. (Pp. 49 to 65.)

ESTABLISHMENT OF TRADE MUSEUMS.

1. The practical representation of the results depends necessarily on the general purpose of the work. This purpose is to present the information in the shape most adapted to its being of direct use to the practical man of business, who has neither time, inclination, nor the requisite training for obtaining it by means of tedious extracts from voluminous records. Practical representation of the results.

The end in view will be best attained by using, as the basis for whatever information is to be supplied, a classified collection of actual specimens of all articles either produced or consumed in India, supplemented by graphic illustrations in all cases where direct exhibition is impossible. These collections will be arranged according to a trade classification, and they will be made to approach, as much as possible, to a collection of actual commercial samples,—that is, each article will be arranged in accordance with the qualities which determine its market price. Trade collections.

2. These collections naturally sub-divide themselves into several groups, each with its distinguishing characteristic and special importance, such as,—

1. Raw produce of India, either used in India or suitable for export ;
2. High-class Indian manufactures occupying, or capable of occupying, a definite position in general commerce ;
3. Products of other countries adapted for Indian wants ; and
4. European machines, tools, and implements.

Each of these four classes has a distinguishing character and requires special action. A few remarks will explain the manner in which it is proposed to deal with each class.

3. It will be observed that the fourth class is in a materially different position from the other three. The first three classes involve commercial questions merely—as, how best to satisfy existing wants in one place by existing resources in another. In the fourth class, the very demand must be created, and it will depend on the introduction of European technical processes and of an increased application of capital and science. To a large extent it involves the question of technical education, because museums showing the machines, tools, &c. must at the same time be made to illustrate the manner of their application and use. They become thus technical museums, and not merely trade museums. The cumbersome nature of the materials, and the difficulties and expenses connected with their successful establishment, render it advisable to defer systematic action in this field until the much simpler and immediately effective measures which have for their object the direct furtherance of trade have been first attained. Besides the subject cannot be dealt with on general principles, but must be adapted to the special conditions of each locality, by selecting such branches of technical processes for actual representation as will be locally useful. The initiative, therefore, in all cases of this kind ought to be taken by local bodies or governments, and it is, properly speaking, outside the limits of the general action here kept in view.

4. The other three groups, constituting properly the materials for trade museums, are capable of being executed on a general plan, commerce being universal in its operations, so that every locality may find useful information on any branch of general commerce. A complete representation will, therefore, suit every locality, and, indeed, there will be important advantages gained if the trade museums, wherever established, are absolutely identical, as they will thus enable persons at distant places to refer immediately to the sample showing the precise quality of the article which they either wish to sell or order.

One of these classes, namely, the foreign products suitable for India, has so direct a bearing on the interests of manufacturers and producers in England, that the action to be taken with regard to it cannot fall to the share of India alone. Plans are already under consideration for the purpose of securing a full representation of this class by the co-operation of mercantile and manufacturing bodies and firms in this country.

5. Of the remaining two groups, the one referring to high-class Indian manufactures has already been the subject of a series of measures undertaken with the sanction of the Secretary of State for India, and has been commenced and partially executed on the same principles as those which will be adopted, as far as possible, for the entire arrangement of the proposed trade museums. The particulars elsewhere given referring to that branch of the subject show that, of the collections of Indian textiles already prepared, 20 sets have been distributed, 13 in this country, and 7 in India, and with respect to the projected new work of a similar description, the chief seats of commerce, &c., mentioned in the foot note* below have subscribed for copies of it a sum amounting in all to 2,600*l.*, and this, on the ground that it is only fair that this country

* The places which have already subscribed for the work referred to are:—In England—Birmingham, Blackburn, Bradford, Bristol, Coventry, Halifax (private Firm), Leicester, London (Science and Art Department), Manchester, Nottingham, Salford, and Sheffield ; in Scotland—Aberdeen, Dundee, Edinburgh, Glasgow, and Paisley. The Minister of Commerce at Berlin has likewise subscribed for a complete copy of the work.

should share in the cost of producing a work which is likely to benefit it as well as India. The steps to be taken to enable India to participate directly in this scheme is a subject which will, in due course, receive attention.

Some further action will be necessary in order to represent, according to the same scheme, other high-class Indian manufactures. The measures for the annual international exhibitions now in progress in London will become very useful in collecting materials and information on this very important subject, and in preparing the way for a systematic measure applicable to all trade museums. It may here be remarked that, in connexion with the international exhibitions, arrangements may ultimately develop themselves not only for giving to England a greater knowledge of Indian high-class goods, but also for affording facilities for the commercial development of the trade in such goods.

6. The paragraphs inserted below,* taken from the "Memorandum relating to the Indian Collection for the International Exhibition of 1871," bear upon this branch of the subject.

The class which still remains to be spoken of, namely, "Indian Raw Produce," is the one which is principally kept in view in the present proposals. The practical arrangement of collections of many thousands of single specimens is no easy task, if it be to allow of a clear view of the various complicated groups, and to be kept within those moderate limits of size and of expense which can alone assure to the trade museums the rapid multiplication which is so essential to their usefulness. The following is the plan which insures a very compact exhibition of a large number of samples, and guarantees the conservation of the specimens, a matter of extreme difficulty everywhere, and notably in India, where the destructive influences of climate and of various insects are so inimical to the preservation of all vegetable or animal specimens. The want of proper precaution against this danger has ruined many a valuable collection in India, and even in Europe the vast majority of the collections of Indian products distributed by the East India Company to institutions at the places indicated below† have long since ceased to exist in a serviceable state. It is evident that efficient trade museums can only be established if it is possible to preserve the collections for a considerable period in a nearly unchanged state. The mechanical means adopted to secure this end are therefore essential to the success of the undertaking, and not merely executive detail, upon which it would have been out of place to enter here.

7. Each specimen, after having been kept for a time in a hot-air chamber at a temperature destructive of animal life, is then introduced into a tin case with a glass front, which allows a free view of the specimen, and provided with a cover which can, when necessary, be hermetically sealed.

The cases are arranged on vertical frames, upwards of 60 to each frame; 17 of these frames, each of which is provided with hinges, are placed around a central pillar-stand, and revolving freely, within certain limits, they allow of a complete inspection of every one of them. In this manner about 1,000 specimens can be exhibited effectually in a space of but 5 feet in diameter. The frames, in addition to the actual samples, will contain descriptive details, illustrations, &c. The accompanying woodcuts, Figs. 1 and 2, are explanatory of this description. The samples are arranged only on one side of the frame. The other side is intended to be used for epitomized information with regard to the articles arranged at the opposite frame. In the two drawings the samples are shown in the frames to the right, and the plates with the information, &c., in the frames facing them to the left. (See pages 49 and 50).

The cost of one such stand, exhibiting 1,000 specimens, will, with the facilities afforded through this Department, probably not exceed 60*l*. The permanency and the compactness of the arrangement are very important points in its favour. The permanency renders the task of the keeper of a trade museum a very easy one, and assures the maintenance of identity on the part of the samples. The compactness makes it possible to accommodate a very valuable and exhaustive collection in a comparatively small building or room even. It will thus economize all merely extraneous and adventitious expenses of the museum, buildings, &c., which in themselves have

* "In the choice of the articles it cannot be sufficiently insisted on that the designs should, in all cases, be artistic as well as characteristically native, and that the workmanship should be as perfect as possible. It is very desirable to impress upon Indian work a character for precision and completeness which it at present often wants. This observation, of course, applies only in a restricted sense to decoration and ornamentation applied by free hand, and in which the charm consists, to a large extent, in the absence of a stiff regularity, and in the license allowed to the artist. But it does apply in all instances where the artistic form is injured by an unevenness in the sweep of a curve, or by a negligent finish of corners and edges, or where the practical fitness of an object depends on the thorough execution of joints, &c. In all such cases exactness of execution must be supposed to have been aimed at by the artist; consequently, if the execution falls very much short of the intention, the looker-on is involuntarily impressed with a sense of failure, which detracts seriously from whatever artistic merits the objects may otherwise possess. It is obvious, besides, that the employment of articles of Indian produce for actual domestic use, and not merely as show specimens, will depend on how far solidity and practical fitness have been combined with artistic excellencies.

† There is another point in connexion with the art objects which deserves special mention. Of late there has been a tendency to apply to large objects the minute ornamentation characteristic of the Bombay inlaid work or of the black-wood carving. There is nothing objectionable in this so long as this minute ornamentation is only intended to fill out the borders, fields, and panels of a bolder design, giving a character of its own to the object. If this intention were always followed, not only would the artistic sense which, for such large objects, requires something intermediate between the general outline and the minute surface ornamentation, be satisfied, but it would often also materially increase solidity and practical usefulness, especially in the Bombay carved furniture.

‡ It would be well also for importers to bear in mind that it is difficult to sell very expensive articles, except when they are in some way especially remarkable. Comparatively cheap articles of nearly all kinds can, if well made, be sold at remunerative prices, but they must be at once characteristic, artistic, and of good workmanship."

† After the Great Exhibition of 1851, the East India Company presented collections of Indian Products to institutions, &c., at the following places:—London, Edinburgh, Dublin, York, Birmingham, Portsmouth, Cork, Belfast, Norwich, Ipswich, Stoke-upon-Trent, Warrington, Aberdeen, Kew, Hammersmith, Berlin, Philadelphia, New York, Wirtzburg, Stockholm, Erlanger, Paris, Copenhagen, &c. &c.

no direct connexion with the purpose of the museum, and will thus prevent sums intended for the promotion of this purpose from being diverted to accessories.

8. The specimens will be selected with the closest adherence to the established trade classification, noting carefully the several sorts and varieties of every article; and the compactness of the arrangement will render easy a comparison of the several specimens. Not all articles, however, will admit of exhibition in this manner. For some, as for coals, and for stones, &c., used in construction, elaborate precautions for preservation are unnecessary, and they must be

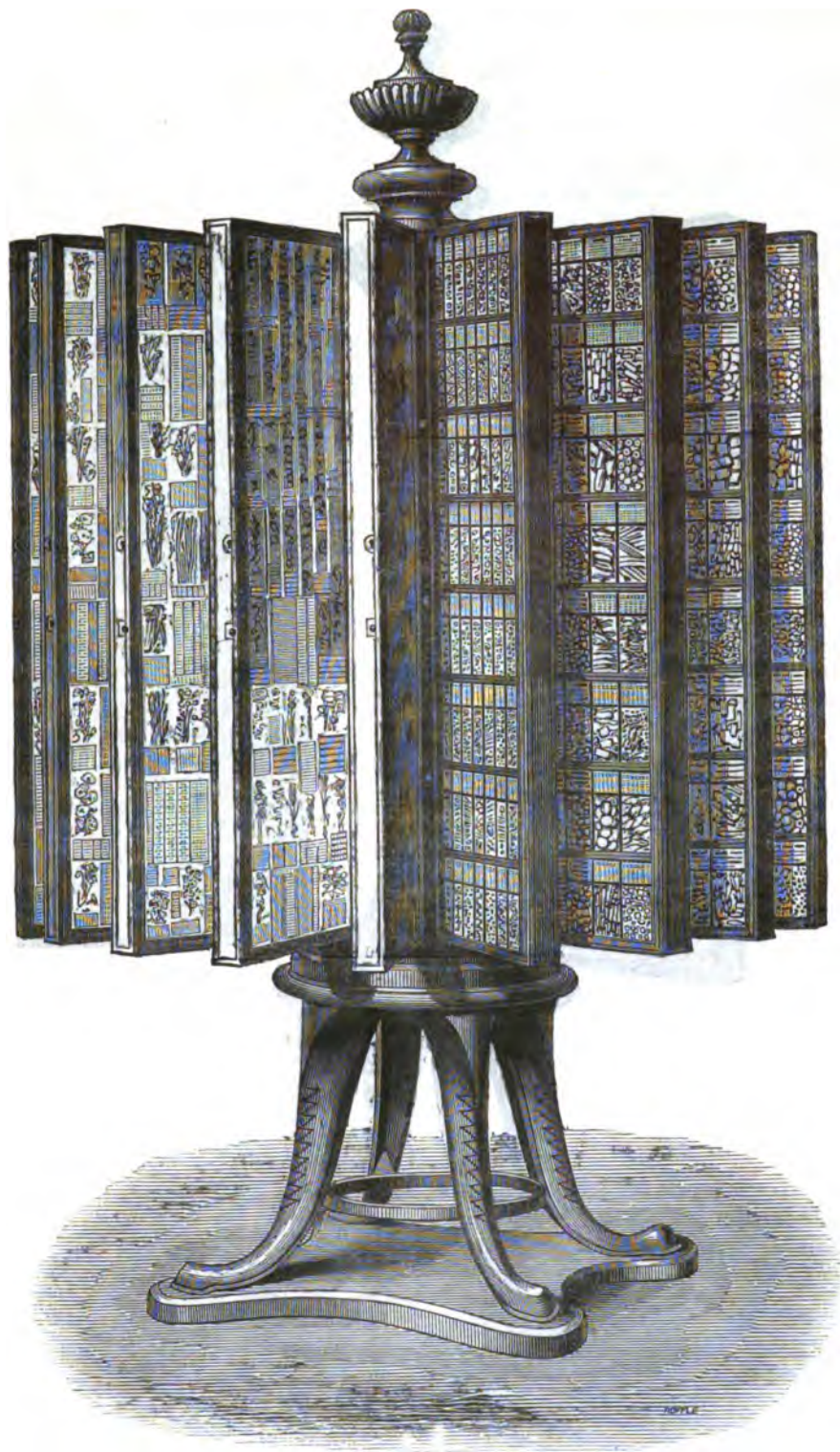


Fig. 1.—Illustration of Stand for exhibition of Raw Products.
(GRAINS, DYES, &c.)

exhibited in much larger quantities than most of the other articles. Others again, such as vegetables, succulent plants,—various animals, fishes, &c.,—can be shown directly only in a comparatively costly and inconvenient manner. Actual examples will, therefore, in these cases, be seldom resorted to; models, drawings, illustrations, and photographs must convey the required information.

This is to a certain extent a matter of minor consequence, as, generally speaking, the quality which renders their permanent exhibition as specimens so difficult equally unfits them for becoming objects of general commerce.

9. Such is the general outline of the trade collections, which, however, forms a skeleton only, as it were, to which flesh and blood and significance will be given by the information attached to the individual articles. Their position in natural history, industrial uses, and modes of preparation will be made clear by numerous illustrations: their production, consumption, and commercial distribution will be shown by maps, and their prices, with their fluctuations and

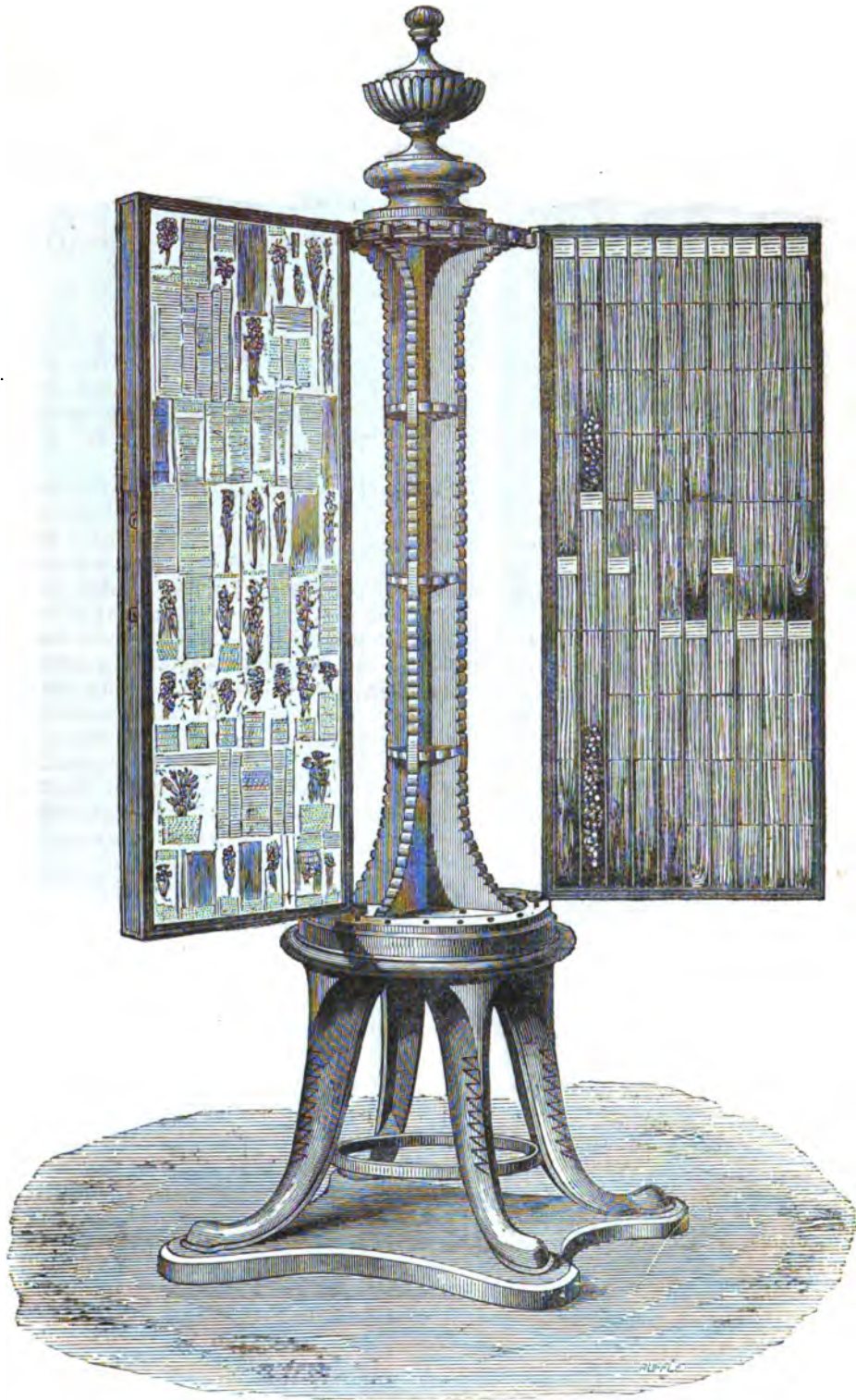


Fig. 2.—Illustration of Stand for exhibition of Raw Products.

(FIBRES.)

averages, will be recorded by maps and diagrams. All these means will be supplemented by tabular statements and descriptions, arranged encyclopedically, and giving for each article individually all the information collected during the progress of the Industrial Survey.

The Survey, however, will not only collect information about products, but will also necessarily take account of markets and their connexion. In so far as possible, the subject will be shown

graphically on a series of maps, and all details not admitting of graphical representation will be digested according to an encyclopedic plan similar to that to be adopted for the articles.

10. It is needless to attempt at present to trace out the trade museums in more detail ; most of these details must be arranged as the occasion arises. Enough, however, has been said to bring out the character of these museums, and to justify the opinion formed of their advantages, if only their execution be made equal to their conception.

11. The usefulness of trade museums organized according to the system just described will be in direct relation to their number. Their power of giving to one portion of India a knowledge of the products of the other parts increases with the number of districts which possess the full complement of collections forming a trade museum.

The knowledge possessed by India of such products of other countries as are suited for her use will increase in the same ratio, while the knowledge of Indian products in England, Europe, and throughout the commercial world generally will depend on the number of trade museums spread all over the world.

Before bringing forward the plan for the establishment of trade museums all over India, it will be useful to glance at their connexion with similar institutions, and at the history of the efforts made in India to promote the ends for which the trade museums are devised.

12. The name, *Trade Museum*, makes it necessary to consider, in the first place, their relation with other museums. Museums generally.

The relation is only a formal one. The trade museums are museums in so far as they are permanent institutions containing classified collections of specimens, but their final purpose separates them from other museums. Art museums, for instance, have, as final objects, a representation, promotion, and cultivation of art ; other museums, or branches of such, tend to promote scientific knowledge in general, such as natural history museums, geological and mineralogical museums, architectural museums, &c. ; others still, not aiming at completeness, want only to collect a few leading types from every field, and thus to facilitate education and instruction.

Each of these classes of museums, artistic, scientific, or educational, must be conceived and organized on a plan corresponding with its purpose, that is, it must be a working instrument in the hands of the artist, man of science, or teacher, and familiarize the general public with its objects. Such museums have only an indirect connexion with the economic organization of the country by that general influence which art, science, and education must exert on agriculture, manufactures, and commerce ; their economic influence is, therefore, necessarily limited ; but it is this which the trade museums directly and essentially look to. They will be arranged solely with respect to the requirements of commerce and manufactures, although indirectly they may afford some help to the scientific man by the specimens of natural objects which they contain, or they must preserve or improve artistic taste by their specimens of art manufactures, and, finally, they may be made useful as means of technical education. All this will follow if only they adequately realize their primary intention of being useful instruments in promoting trade and manufactures. Thus it will be seen that there is no similarity, as regards practical purpose, between museums, as usually understood, and trade museums. It was necessary to enter on these questions of principle in order to prevent any confusion between museums, as at present existing in India, and the now proposed trade museums.

13. The central museums at Calcutta, Bombay, and Madras, the museums in the chief provincial towns, and even in some district towns, have an important mission to fulfil, and it will be of the greatest service to India if institutions of a similar kind should increase in number as well as in the extent of their influence.

But in connexion with these museums there is a large and special field for the action of trade and technical museums. Existing museums should be supplemented by the addition of trade museums, and it will frequently happen that such museums will become nuclei around which scientific, artistic, or educational museums may be from time to time aggregated according to local interest and help in the matter.

14. There is a direct connexion between trade and technical museums and another class of institutions, namely, exhibitions. In fact, in reviewing the various arguments in favour of exhibitions, we find amongst them this one, viz., that they give a complete picture of the material condition of the country,—of its products, its manufactures, and the commercial and technical spirit which creates all this material wealth,—and thus offer industrial and commercial information on the largest scale. These are the very objects which the trade museums are designed to effect, and it is therefore very important that we should discuss the relations of the two institutions. As a preliminary remark, it may be said that the idea of trade museums was brought forcibly to the mind of the author of this memoir on comparing the promises and expectations with which the first exhibitions were opened with their actual tangible results. He has had on several of these occasions the mission to organize the Indian Department, and, on watching intently the practical influence of the Indian exhibitions, as well as of the other branches of those gigantic undertakings, it struck him, as it struck the minds of a great many other people, that the expectations of a great practical result were disappointed in some respects, and that more direct and systematic means must be taken in order to realize them. The present proposals for the establishment of trade museums have their origin in the practical experience of these exhibitions, and in the conviction that some more steps must be taken to make temporary exhibitions as useful as they might be. Trade museums and exhibitions.

15. The present moment may be considered as an important one for the future of exhibitions. After a successful career of 20 years, not taking into account the smaller efforts before 1851, the

public mind is now disposed to look to the actual performance rather than to enthusiastic visions of possible future results. The continuance and development of these exhibitions will depend on their adaptation to definite practical ends, the vague sentimental aureola surrounding them having worn off. The change in the public mind is very significant, and the arrangement of the present series of international exhibitions is to some degree already influenced by the new sentiment. The question is one of considerable interest for India, as she not only takes part in the international exhibition, but has already made a very good beginning with exhibitions in her own provinces. The financial and material position of India renders it imperative on us to obtain the maximum of results from any efforts made by her in this direction. If some observations which have to be made should chance to appear insufficiently appreciative of the services which exhibitions have rendered, it is best to admit and to insist at the very outset that the great international exhibitions since 1851 have been very important events, were it only for the great stir and public interest in economic questions which they have excited, an interest which has given importance to many a useful reform or movement which otherwise would have remained without popular sympathy, as, for instance, artistic and technical education, monetary and metric reform, &c. They have thus been instrumental in bringing into practical execution many conceptions, which, however, were held and elaborated independently of them. It is only when the results are tested by the amount of practically available and definite information, mercantile or manufacturing, which they have afforded, that the efforts which they have demanded seem out of all proportion to the smallness of the permanent effects which they have produced. They presented an overwhelming crowd of objects, arranged principally for show and with very small regard to the exhibition of their really important features, and above all they presented a great want of systematic and readily accessible data on the production, commercial importance, price, &c. of the articles.

16. This is almost the exact counterpart of the conditions which alone enable us to gather a large amount of information. These conditions are a small number of selected, logically classified, and fully described articles. In fact, the very elements which create such a personal interest in exhibitions on the part of a large number of people, all tend to make them less suitable for the purpose here kept in view; it is hardly possible that it should be otherwise. What are the principal motives why exhibitors send their goods, and why visitors throng to the exhibitions,—the exhibitors, whose cumulative personal efforts make the exhibitions, and the visitors who are supposed to be the people benefited by them?

In order to excite the personal efforts of the exhibitors the exhibitions strongly appeal to their interests—to the extension of their business, in consequence of the increased acquaintance of the buying public with their productions. This personal interest has been strengthened by systems of honorific distinctions, such as medals, &c., and in the smaller local exhibitions (such as agricultural shows) by substantial prizes in money or other valuable materials. Public bodies, Governments, and occasionally single exhibitors have sometimes arranged their exhibitions with a direct public end in view, in order to give to every visitor full access to industrial information; but this has been exceptional. It is true that even if every exhibitor has only his own personal advantage in view, his work will, at the same time, contribute to the public good, whether he intends it or not, and the united results of the efforts of thousands of single exhibitors must, in addition to their advantages to the exhibitors, give a representation of the produce of different countries from which it is impossible not to deduce some important additions to our knowledge. But this representation of the produce and manufactures of a country must be very incomplete, fragmentary, and unequal, and dependent entirely on whether in some particular trade or locality there are individuals who, either from public spirit or the expectation of personal advantage, are prompted to join in it: and it may be added that, to facilitate business-like information on any trade or branch of trade is, as a rule, against the personal interest of the exhibitor, who, anxious to drive competitors out of the field, is very interested in keeping such information to himself as a monopoly, whereas the public, which is benefited by every facility given to competition, is, on the contrary, interested in making such information as public and as accessible as possible. In the balance of advantages and disadvantages which exhibitions may thus bring to the individual exhibitor, the latter may very often prevail, and thus bring about numerous abstentions, as was the case in the Paris Exhibition, 1867, and the London Exhibition of 1871, when many important firms found it was not to their interests to join.

If these are the necessary motives of exhibitors, and if they comprise all the difficulties thrown by them in the way of obtaining for public use all the industrial information which was expected from exhibitions, there are additional difficulties and inconveniences arising from the manner in which such exhibitions have been carried out. The heavy outlay for buildings and other preparations was a reason for giving, perhaps, an undue preponderance to various devices adopted with the view of making the exhibitions more popular and attracting the largest possible number of visitors. The exhibitions by efforts in that direction have been rendered more attractive, but perhaps less instructive, systematic arrangement being too often sacrificed in the desire to obtain a picturesque effect or an imposing *coup d'œil*. Finally, the enormous number of visitors, although it made the exhibitions a financial success, and although it greatly extended their influence in some respects, contributed much to prevent a quiet and systematic study on the part of those few who came not to be amused, but with a serious purpose.

Add to this their ephemeral nature, precluding any really effective comparison between two successive displays, save by dry and necessarily incomplete reports, or by vague reminiscences, and it may be conceived how it came to pass that these enormous efforts have contributed so little, comparatively, to our stock of precise industrial information ready for practical application.

17. It is important that these remarks should not be misunderstood. They do not mean that exhibitions generally are not useful, or not worth the trouble involved in preparing them; far from it. The great public interest which they arouse in economic matters, the advantages of the commercial competition which they keep alive, and the spirit of honourable rivalry and emulation which they foster, are all powerful motives for promoting and extending the movement. But it is useless to expect from them that which, by the very nature of the causes which make them successful, they cannot realize. The primary incentive to all contributors is personal profit or personal distinction, and it should even be a matter for serious consideration, whether the personal advantages held out by exhibitions should not be increased; but they cannot, at the same time, be expected to be institutions for the direct promotion of information—commercial, industrial, and artistic. They may contribute raw materials towards this object, but the machinery for elaborating them, and for making them generally useful, must be designed with special reference to the purpose which is to be attained. To give an example: the effect of the exhibitions on art manufactures in England would have been very transient and partial had these ephemeral impulses not been consolidated into a systematic effort by the establishment of the South Kensington Museum and the Science and Art Department. That Department is the specially devised engine by means of which the artistic results of the exhibitions are worked out and made accessible throughout England, and utilized for art education.

18. In a similar manner, exhibitions suggest and demonstrate the advantage of having full industrial information about every product, raw or manufactured, and about every market; but they do not give *all* the necessary data, and they even present that which they do give in such a crude undigested form, that it is not practically available, the effort to elaborate and to complete it surpassing the strength of single individuals. This end will be better attained by a special organization provided for the purpose, than by attempting to reconcile almost incompatible conditions, and making exhibitions an undefined cross between bazaars and academies, or scientific institutions, supplying amusement and instruction in addition to profit. This is not the place for investigating the question of the precise organization which would be most suitable for exhibitions. The observations here offered aim only at ascertaining how far they may be made serviceable for obtaining industrial information. In this respect their action must only be suggestive and supplementary. Whatever immediate result they may bring to light must be elaborated, rendered permanent, and made easily accessible by means of trade and technical museums.

19. These institutions will contain only a comparatively limited number of specimens, selected solely on account of their trade importance, arranged solely according to their commercial classification, and exhibited in such a manner as to give the best idea of their essential qualities, and accompanied by the most exhaustive information obtainable, which, indeed, for India, will necessitate a special industrial survey.

Such museums will render the results of exhibitions permanently useful, and will form standards of comparison for judging of future progress. Exhibitions need not then tread the old ground over and over again, and whatever new or different they may bring forth, such as a new product, a new manufacture, or improvement in quality, &c., will, as the occasion arises, be at once secured as a permanent addition to the trade museums, which will then be kept always up to the level of the latest changes. These museums may, besides, be multiplied by almost identical reproductions, and thus afford not only a permanent but a very widely spread source of reference, and make possible, wherever they are established, a comparison with and reference to the same standards.

These few remarks, taken in conjunction with the other portions of the present memoir, will perhaps sufficiently explain the relations which exist between exhibitions and trade museums, the reasons why both are useful, and the expectations which may be entertained with regard to their action.

20. In India the movement in furtherance of exhibitions and cognate institutions has during the last 20 years gradually acquired a considerable force, and has been largely prompted by the desire to obtain and to disseminate sound industrial information. Although several large exhibitions have been held, as that of Agra in 1865 and that of Calcutta in 1864, and smaller ones by the score, it must be owned that these efforts have been more or less of a spasmodic character. That their purpose of collecting and diffusing industrial information has been only very partially attained need not be considered surprising, after the exposition already given of the necessity for specially designed trade museums if permanent and tangible results are to be attained in this direction. They have, however, familiarized the natives with undertakings of this character, and paved the way for more systematic and thorough-going schemes. The necessity for a really systematic action has always been felt in India by those who have approached this question. Almost all promoters of the movement have also been agreed that this systematic action must be rather local and repeated at short intervals than exhausted by a few huge displays. There has been only one attempt to organize an exhibition on a scale approaching to the European International Exhibitions. This was the projected Bombay Exhibition, which fell to the ground in the cotton panic of 1865. A system of numerous local shows, however, was laid down and acted upon with some success by Lord Harris in the Madras Presidency, where there have been since 1856 numerous district exhibitions, the Government contributing important sums for expenses, prizes, &c. In the Bombay Presidency the Government of Lord Elphinstone entertained in 1858, at Dr. Birdwood's suggestion, plans not only for a regular series of industrial exhibitions, but for the simultaneous establishment of local economic museums. The financial embarrassment, however, following so shortly after the mutiny, did not allow of these views being carried into execution.

Systematic action in India with reference to exhibitions and economic museums.

In Bengal, on the occasion of the Agricultural Exhibition in Calcutta in 1864, the then Lieutenant-Governor of the Lower Provinces, Sir Cecil Beadon, recorded in a Minute his pro-

posals for annual agricultural exhibitions in each division, and proposed a Government grant of Rs. 30,000 for the purpose. In the North-West Provinces a committee was organized in 1867 with the view of suggesting the best means for the establishment, not of exhibitions, but of local economic museums, with the intention of introducing in that manner European processes of manufacture, &c.

All these successive proposals, and the actual exhibitions held in many places, show at least that the ground is already well prepared for action on a comprehensive plan, and that there is a remarkable agreement between the different efforts, in showing that the action must be regular and local in order to take root in the country.

APPENDIX B.

SKETCH of a PLAN for an ORIENTAL MUSEUM proposed to be established at the INDIA HOUSE.

(Submitted to the Court of Directors of the East India Company by Sir Charles Wilkins in 1799.)

A LIBRARY,

To consist of MANUSCRIPTS and PRINTED BOOKS.

The MANUSCRIPTS to include works in all the languages of Asia ; but particularly in the Persian, Arabic, and Sanskrita : and great care should be taken to make the collection very select, as well in correctness as subject.

The PRINTED BOOKS should consist generally of all such works as in any way relate to Oriental subjects, including all that has been published upon the languages of the East, and every work which has appeared under the patronage of the Company. Maps, charts, and views, with coins, medals, statues, and inscriptions, may be included under this head.

A CABINET OF NATURAL PRODUCTIONS.

Under this head are included ANIMAL, VEGETABLE, and MINERAL productions.

The ANIMAL PRODUCTIONS should comprehend chiefly such animals, parts of animals, or produce of animals, as are objects of commerce, and all in their natural state: the tusks of the elephant, the wool of the shawl goat, the musk in its bag, the cocoons of the different species of silk worms (not omitting that curious sort which is cultivated near Purnea, and is fed upon the leaves of the Palma Christi, and which is little, if at all known in Europe), lack, with its colouring substance in its crude state, the cochineal, and the edible birds' nests. Such of the animals as produce these and similar substances, provided they be not too large, may be admitted ; nor should others which are only objects of curiosity, when offered as presents, be refused a place in the Museum. Each article should be accompanied by an Abstract of its Natural History.

The VEGETABLE PRODUCTIONS should, generally speaking, comprise specimens of all the plants, seeds, and fruits of Asia ; but attention should, in a more particular manner, be paid to such trees and plants whose produce is an article of commerce. There should be specimens of all the different trees whose wood or timber is in estimation for ship-building, or domestic purposes ; as well as of such as are esteemed for their medicinal virtues or fragrant scent. Each specimen should be accompanied by a Memorandum of its peculiar qualities, place of growth, &c. The different species of indigo, and other plants used in staining and dyeing, of the sugar cane and tea trees, and of the cotton plants, must not be neglected any more than the numerous tribe of oils, gums, and resins, which are the natural produce of the plants of Asia.

The MINERAL PRODUCTIONS will, in the first place, include specimens of the ores of all the metals and semi-metals of the East, as well as of the metals themselves when found in their perfect state in the earth, which is sometimes the case. Specimens should be procured of the very curious species of steel which is known at Bombay by the name of bat, or coots. As pit coal has within these few years been found in the Province of Beerbhoom and some other parts of India, samples of it should be procured ; as also of the bitumens and petroleums which abound in some parts of Asia. It would be a curiosity to our chymists to see the saltpetre, and the fossil alkali in its native earth, unmanufactured, as well as the borax as it is taken from the pits. There should also be a collection of precious stones, and of the various species of marble and alabaster. If not mistaken, marble fit for the statuary is produced at the Cape. Particular attention should be paid to those stones, earths, and clays as might be useful in our manufactures. Specimens of the kern stone, which is used for cutting the inferior gems, should be procured, and of the porcelaine earths called petunsee and kaolin, found in great abundance in Beerbhoom. Samples of that very curious fossil known in Bengal by the name of cuncur, of which the natives make lime, should also have a place in the Museum.

ARTIFICIAL PRODUCTIONS.

Under this title come generally samples of all the manufactures of Asia, and, particularly, of every article in silk and cotton, in every stage from the cocoon and pod to the cloth ready for the market ; of the different sorts of colouring substances prepared in India ; of sugar and sugar-candy ; of saltpetre and borax, &c. &c. Models of the various machines and tools used in the manufactures of Asia should form a part of the Collection ; and also of the implements of husbandry, and instruments used in their sciences, mathematical, astronomical, musical, &c. &c.

MISCELLANEOUS ARTICLES.

To consist of curiosities, chiefly presents, and generally such things as cannot conveniently be classed under any of the former heads.

MEMORANDUM.

Should the Museum be established, how very desirable it would be to the lovers and promoters of Eastern learning, and how exceedingly useful to the cause of science in general, if a Society, similar to that now flourishing in Calcutta, were established under the patronage of the Court of Directors for the time being, with permission to hold their meetings in the Library, and the use of the Collection so far as to assist them in their researches. There are several of the distinguished members of the Asiatic Society of Bengal now residing in England, and the names of many other celebrated Oriental scholars occur with the first thought of such an institution.

A printing office, furnished with types in the Oriental characters, might be established by the Company, at which their current business might be executed, which of itself, it is presumed, would go a great way towards a reimbursement of the expense. Such works as may be done for the Society, their Transactions, &c., to be paid for out of their own funds.

C. W.

APPENDIX C.

INTERNATIONAL EXHIBITIONS.

I.

From the *Times*, 28th Dec. 1872.

THE correspondence which has appeared in *The Times*, as well as in various periodicals, with reference to the South Kensington series of International Exhibitions, indicates a significant change in the public feeling on this subject. It is of the utmost importance for the future of International Exhibitions that the causes of this change should be traced, so that we may discover why it is that the present London series has so signally failed to achieve that measure of practical success which was realised by the Great Exhibition of 1851, and, to a lesser extent, by those of 1855, 1862, and 1867. Whatever may be the causes which have brought about the actual state of public feeling, the new situation must be accepted and the difficulty faced. There is no use in shutting our eyes to the fact that the enthusiastic expectations of 1851 have given place to a growing feeling of indifference, mingled with impatience, on the part of the bulk of practical men, and to a feeling of scepticism and disappointment on the part of a great number of thinking men.

To talk about the natural and necessary reaction of public feeling—about the revulsion which always follows exaggerated expectations—is but to utter commonplaces, which may describe but do not explain the existing state of things. What, then, are the organic causes of the existing discontent with Exhibitions?

The superficial and vulgar explanation would be to ascribe the discredit under which these Exhibitions now labour in England to mere personal causes—faults of management, and the like. But even if such a charge could be admitted, it would be entirely inadequate to account for the magnitude of the reaction. And, although the master spirit has long since passed away, it must be remembered that the present Commissioners are virtually the same body which brought the Exhibition of 1851 to a triumphant issue, that their experience and skill in overcoming the mechanical difficulties of an Exhibition have since then vastly increased, and that the modifications introduced into the programme of the present series of International Exhibitions are, as a rule, so far as they go, modifications in the right direction, dictated by a sober and practical spirit. A certain amount of hesitating and undecided conduct in some matters of detail, and of friction with some of the private interests engaged in the Exhibition, are not causes but rather symptoms of the disease, and do not prove that the present management is inferior to that of 1851. All such mishaps are the natural result of the altered state of public feeling. The Commissioners in 1851 had to deal with a willing public; now they have to deal with a restive one. In 1851 they had to guide and control a great spontaneous outburst; now they have to persuade, even to coax, an unwilling constituency. The supposition that such a radical change in the situation is due to personal faults of management must be dismissed as groundless, or at least insufficient. The real cause is far deeper and more difficult to remedy. It is discontent, not with the management, but with the very principle of the Exhibitions. Their usefulness as public institutions is questioned. The generation of 1851 believed that Exhibitions had a great public mission to fulfil, and that a participation in them would, in addition to the public good, secure great private advantages. At present both their public usefulness and their efficiency in furthering private interests are strongly doubted, sometimes distinctly denied. It is of importance to inquire which of the two feelings is right—the faith of 1851, or the scepticism of 1872.

I believe it may be shown that both these feelings are founded on fact, and that the one has grown out of the other by a perfectly natural and unavoidable transition of ideas and change of the point of view—that, in fact, both represent merely different aspects of the same subject.

As a preliminary matter, it is necessary to indicate two causes which contributed powerfully to the success of the earlier Exhibitions. These causes were the novelty of the undertaking and the undeveloped state of international relations. An analysis of the practical influence exercised by the four Great Exhibitions of 1851, 1855, 1862, and 1867, leads to the conclusion that a considerable part of this influence was moral or even sentimental. The public mind received a powerful impulse in a new direction, which led it to consider and to recognise the importance of many questions which would not otherwise have received attention. Private enterprise was aroused to new exertions, and assumed in many instances an enlarged scope. The action of the first International Exhibition will never be rightly understood unless we assign an important action to that intangible influence of the mere start, shock, or impulse, which in some respects acted like giving sight to the blind. It is clear that influences of this kind must rapidly wear off as soon as Exhibitions become matters of routine; and this, indeed, is what has occurred already.

At the same time that the influence of novelty was declining another equally important change occurred. The vast increase of international commerce since 1851, the rapid spread of railways and telegraphs, the establishment of agencies, with hundredfold ramifications, and of extensive warehouses—themselves partial Exhibitions—together with other developments in the same direction, have deprived International Exhibitions on the restricted plan of 1851 of much of their former influence, by the same process by which modern commerce has superseded the mediæval system of gigantic fairs. The universal Exhibition about to be held in Vienna may allow of the realisation to some extent of the effects produced by the first Great Exhibition in England, and it

promises to be a great success. It is a novel undertaking for Austria, and Austria is a country in which the natural resources are as yet very imperfectly developed, and in which manufactures are less centralised and on a smaller scale, and commerce infinitely less comprehensive and cosmopolitan, than in England. Looking at the great activity which has already been displayed, and at the eagerness with which the private enterprise of the country and of other neighbouring countries has become engaged in the new Exhibition, there is no doubt that it is likely to give a great impulse to the commercial and manufacturing activity of Austria, and that it will serve to bring it into closer relations with international commerce.

The greatest sceptic cannot deny that similar results have followed each of the first International Exhibitions. It is admitted on all hands that they helped to promote sound commercial policy and legislation, hastened the conclusion of the Commercial Treaties, directed public attention to the unification of the standards of measurement and of value, became directly instrumental in bringing about a greater correspondence in the statistical and Custom-house returns of the different countries, and gave a powerful impulse to the artistic and scientific education of the industrial classes. Among other less general effects it will suffice to mention that the extensive use of machinery in agriculture in America and in England, as exemplified by the Exhibition of 1851, fell on the continental countries like a revelation, and that the examples of Oriental art then for the first time exhibited on a large scale acted in the same manner in England.

This cursory enumeration of the more prominent results of International Exhibitions shows conclusively that, so far, the movement has been one of great public usefulness, and has amply repaid the considerable amount of public and private energy spent in its furtherance. But it is not equally evident that these Exhibitions will continue to produce equally important effects.

Following our previous argument, most of the results as yet obtained are traceable to the operation of causes which are becoming less and less operative, less so even in proportion to the very efficiency of the Exhibitions in attaining their object.

The Exhibitions have powerfully contributed to knit closer the bonds of international relations, and have inaugurated a rapid and constant interchange of ideas between all the countries touched by international commerce. Their success has been so complete in this respect, and has been so much favoured by the whole course of commercial development, that many objects which in 1851 were considered as being capable of realisation only by the means of great periodic public efforts, occurring at considerable intervals of time, are now permanently acquired by private trade, and have passed into the daily practice of international commerce.

New ideas, discoveries, inventions, knowledge of new markets or new sources of supply, now permeate the whole commercial world, without waiting for the quinquennial or other periods of a Great Exhibition. Individual action has outstripped collective action, and at present the Exhibitions do not originate, but merely register, the change wrought by other agencies.

It results from this exposition that the same chain of argument which accounts for the successes of the first Exhibitions appears to tell against the establishment of International Exhibitions as permanent institutions, and seems to lead to the conclusion that England has outgrown that stage of economical development at which alone such Exhibitions could exercise any adequate influence.

As a matter of fact, no Exhibition has ever equalled in effect that of 1851. Those of 1855, 1862, and 1867, although steadily increasing in bulk and expenditure, have not shown a corresponding increase in practical effect, but rather the reverse; and at the present moment it would be very difficult to give one instance of a manifest public benefit attributable to the Exhibitions of 1871 and 1872. It is no answer to say that, apart from great and striking reforms, there are in operation many minor influences benefiting this or that private interest, and that these produce results which, however small individually, become considerable in the aggregate, although it might not be possible to trace them separately. This is true, no doubt. The Exhibitions certainly promote a good number of individual interests, but this fact at the best would be an argument, not for public action, but for the organisation of joint-stock companies for the commercial promotion of these interests. A public institution can only live in virtue of a manifest incontrovertible and tangible public utility, and consequently International Exhibitions will continue to live only on the condition that a public utility of this kind is clearly established.

The generation of 1851 measured this utility by its estimate of the greatness of the opportunity, the amount of capabilities, and the importance of the objects the attainment of which it anticipated, and it consequently attached a transcendent importance to the idea of International Exhibitions.

Since then we have had a series of actual performances by which to test the correctness of these anticipations, and, as sober criticism has begun to be applied to the practical results, the idea of the importance of International Exhibitions has steadily declined.

I have already shown by what process of reasoning the unquestionable results of the first Exhibition are traceable to the action of causes which are not likely to be equally influential again, and how small are the results which can reasonably be expected as likely to arise from International Exhibitions in the future. The sceptical view, when stated in its extreme form, would hardly allow these Exhibitions to be good for anything more at present than as a means of advertisement *quâ* exhibitors and of amusement *quâ* visitors. To puff and to tickle these would be, according to this view, the only effects really within the undisputed scope of that great public institution which, according to the ideas of 1851, was to be instrumental in bringing about a political and social millennium.

It is hardly necessary to say how unjustifiable it would be to pursue mere negative criticism up to such extreme limits; but, nevertheless, the view thus expressed does represent the opinions of a considerable number of people, and, what is more important, it is being acted upon.

This view is, at the present moment, guiding hundreds of important firms which abstain from exhibiting, and the rapidly diminishing number of visitors shows that it has begun to influence the public also, and to a considerable extent. It is the prevalence of this view which explains

the small amount of interest excited in England by the Vienna Exhibition of 1873, full as it is of suggestive issues.

Thus far I have endeavoured to represent, as accurately as I am able to read the public mind, the causes and symptoms of the great reaction against International Exhibitions now beginning to prevail. The situation looks serious because a stratum of undeniable fact underlies the popular feeling; and although the case against Exhibitions as here given may be vaguely felt to be overstated, it cannot be roundly refuted by pointing to recent instances of manifest public good which has resulted from these institutions.

I now proceed to indicate briefly the other side of the question, and to point out the elements of promise still existing in the movement, and I will endeavour to point out the conditions for a regeneration of International Exhibitions on a basis calculated to re-enlist public support. And, first, let me state that future success depends on the reconstruction in the public mind of a clear and high idea of the magnitude and importance of the functions which International Exhibitions may be made to fulfil. The public—the exhibiting and the visiting public—are the real actors in the Exhibitions; the whole thing is done by or for them. Whatever policy be adopted, it can only become a living policy if it receives popular support. Consequently, a perfect understanding should prevail between the organisers of Exhibitions and the public as regards the objects which the Exhibitions are to aim at, and the executive means which they are to employ. The ground of 1851 has been cut from under our feet by the gradual current of events, and only by a full public discussion can a new basis be established. I have two remarks to make on the character and course of such a discussion. In the first place it is desirable, and indeed essential, that it should not be merely a critical one, pointing out past shortcomings and failures, but that it should rather take the form of suggesting new methods for the development of the great latent capabilities of International Exhibitions. It is my conviction that such methods can be found, and that the usefulness of the International Exhibitions at South Kensington can be made incomparably greater than at present.

In the next place, it is right to remember that the doubts which are now beginning to be entertained by the public have long weighed down the minds of the organisers of Exhibitions. Were there nothing else, the final Report of the French Commission of the Paris Exhibition of 1867, recently issued, would be sufficient to prove that those most intimately connected with the organisation of Exhibitions have for many years past strongly felt their shortcomings. But these doubts became only the starting point for a great number of new ideas put forward on various occasions for a more or less thorough reform of the prevailing system of these Exhibitions. Thus it has come about that during the past few years a good many new paths have been struck out. Some of these new ideas have found practical expression in the South Kensington series, others in the late Moscow Exhibition, and others in the approaching one at Vienna. All these new ideas and experiments are so many elements, which, if gathered into one comprehensive programme, will become the basis for a new departure as soon as the public at large comes to the conclusion that important changes in the present system are required; and that a change is inevitable before long I am fully convinced.

My own interest in the change and in the discussion which this letter and the one which will follow it are meant to invite, is easily explained. In the case of the Indian section of the Exhibition the difficulty of realising and tracing the links connecting cause with effect—the effort with the practical result—is very considerable. In the course of my reflections directed to the object of seeing how these Exhibitions could be made a powerful living influence on the development of Indian trade and manufactures, I have come to two conclusions—firstly, that no isolated action is possible or permissible on account of the Indian Department independently of the general system of the Exhibition, and that, therefore, changes in this department depend on changes in the whole system; and, secondly, that certain principles which appear to me to be required by the Indian aspect of the case are of general application. At the root of the present critical state of these Exhibitions is the fact that their action is *indiscriminate*, and consequently, like indiscriminate charity, produces results very different from or even quite opposed to those intended. Everything is done in reference to the 'public' in general. Now, the 'public,' in its relation to Exhibitions, consists of certain well-defined special classes; in a narrower sense, it consists of the producers, traders, and consumers—these being sub-divisible according as they are interested as exhibitors or visitors. In a wider sense it consists of the private community, the intellectual, artistic, and material progress of which is aimed at; and, finally, there is the State, which may and should derive from these great undertakings certain definite conclusions, shaping its policy and influencing its legislation. The interests of these different sections of the 'public' are in a great measure different, and in some measure conflicting; yet the promotion of every one of these interests may, and should, be made the subject of specially devised measures, while preserving harmony in the general working of the Exhibition.

The substitution of this notion of several well-defined separate interests for the misleading and nebulous notion of a 'public' in general leads to important changes in the scheme of the Annual International Exhibitions at South Kensington. What some of these should be will form the subject of my next letter.

Athenæum Club, December 26, 1872.

II.

From the *Times*, 30th Dec. 1872.

In my former letter I pointed out that International Exhibitions in this country must regain a character for striking public usefulness if they are to enlist the amount of public support which they formerly enjoyed, and that they will never be organised on a satisfactory basis unless careful consideration is given to the different interests involved in their success, and unless special measures are taken to satisfy each one of those interests.

These interests may be classed under three heads—viz., the individual interests of the exhibitors, the individual interests of the visitors, and the collective interests of the community. It is evident that the interests both of the exhibitors and of the visitors must be satisfied before anything else can be attempted; the very existence of Exhibitions depends on them, but only when the interests of the community are also distinctly benefited will these Exhibitions continue to exist as great public undertakings.

The successful organisation of an Exhibition will then depend on the concurrence of these conditions. The Exhibitions must be at once profitable to the exhibitors, instructive to the public, and useful to the community at large; and their influence in each of these cases must be not merely potential or presumptive, but distinctly traceable and tangible.

I will now endeavour to indicate how far the present South Kensington series of Exhibitions satisfies—or, rather, does not satisfy—the three conditions above mentioned, and at the same time I will take the opportunity of submitting a few suggestions as to the steps to be taken in order to place these Exhibitions in a more satisfactory position than they hold at present. For some of these suggestions it will be found that precedents already exist. It is not my purpose, nor am I at present prepared, to submit a complete working plan for these International Exhibitions. My intention is merely to give here a few tangible proposals calculated to afford some solid ground for a discussion, in which, as explained in my former letter, I am interested.

The Commissioners' programme for the series of International Exhibitions from 1871 to 1881 is an important step in the attempt to put these Exhibitions on a thoroughly practical basis. It is a repudiation of the sentimental element of Exhibitions. There is no desire to act by the mere bulk and size, by the moral effect of a vast concourse of people, by making the Exhibition a great public event, throwing into shade all other events of the day. This is the first result of intellectual criticism applied to the original sentimental idea of International Exhibitions. Instead of the transcendent pretensions of the previous Exhibitions, it claims only a steady, permanent usefulness in matters of industrial education, and in the introduction of science and art into national manufactures. If anything, the soberness of some of the arrangements has been carried too far.

The rule restricting the Exhibition of each year to a few manufacturing groups, which will not come back for ten years, is a thoroughly practical one. The practice of having yearly Exhibitions of artistic novelties, and of inventions and discoveries, contains the germ of a good idea, capable of great extension. As at present arranged, an interval of ten years must exist between two successive Exhibitions of the same class of manufactures, and, consequently, the Exhibition would be without any influence on the development of such manufactures during this long interval if there were no means of bringing to public notice, as soon as they arise, the changes and improvements which in the meantime have occurred. Those changes may be of a threefold character; they may be the result of a new application of art, or science, or of the discovery and use of new products. It is a philosophical as well as practical arrangement to combine decennial static Exhibitions with yearly supplements, as it were, showing the dynamics of the same branch of manufactures. It would, however, be necessary to give for this purpose a far greater prominence than is at present given to the scientific and mechanical novelties in order to insure their ranging each year over the whole field of manufactures, and it would be desirable to add to this section a series of novelties in products which would be equally independent of the classes for the year. The series of artistic novelties is already sufficiently provided for. Indeed, I would question the wisdom of having every year an Exhibition of new pictures and statues. This is pure art, and not applied art, and may be considered as sufficiently cared for independently of these annual International Exhibitions. An international comparison of the best works once in ten years would probably be quite sufficient.

Although it has been possible, as above, to suggest one or two fractional developments, it must be admitted that the plan of the whole series, as designed by the Commissioners, is a remarkably practical one, that it lends itself readily to useful developments, and that it is likely to form the foundation of the future arrangements of all International Exhibitions. Why, nevertheless, have these annual International Exhibitions failed to achieve any decided success? The answer will be obtained by applying the test for the efficiency of Exhibitions given at the beginning of this letter. Can these Exhibitions be shown to have produced any striking and tangible influence on the interests of the community, or on those of the visitors and exhibitors? The answer to this question will be that, as regards the three interests here referred to, the present series of Exhibitions not only shows no advance on previous ones, but rather shows the reverse; and that some of the recent Exhibitions in other countries are in certain respects superior to the Kensington series.

At the root of the matter stands the fact that there is hardly any systematic action in any of these respects. The programme contains the elements of a good foundation, but the superstructure is almost totally wanting. As regards usefulness to the community, the practical arrangement and limited scale of these annual Exhibitions might have allowed the execution of well-considered schemes for the utilization of the accumulated materials more easily than could have been done during any of the four previous great International Exhibitions, in which the mere bulk tended to prevent a real grasp. Not only is there no progress in this respect, but there is a retrogression. In 1871 reports were published, while none have appeared in 1872. Besides, in everything touching the collection and diffusion of industrial information, the South

Kensington Exhibition exaggerates a false direction but too prevalent at the present time. I mean the great importance attached to popular knowledge of all kinds. Machines of an elementary description are kept in motion to instruct the public, and reports are written to make the public popularly acquainted with manufacturing processes. The great problem is to discover what will 'take' with the public. It is difficult to conceive what great public good can arise from such endeavours—what results can possibly follow the possession of a few vague notions by people who will never be in a position to apply them in practice, or to whom the smattering so obtained would be next to useless should circumstances ever call upon them to make the attempt. The utmost that can be said for such popular knowledge is that it is a healthy—or rather harmless—mental recreation. But surely this should not be the main object of a great public organisation! A popular knowledge of manufacturing processes would be about the last thing which would be selected if it were of public importance to spread popular knowledge of some sort. A knowledge of the laws of health and other matters directly affecting the welfare of the community would have a prior claim. This adverse opinion respecting popular knowledge must not, however, be misunderstood. A certain confusion of terms prevails on this subject. Popular knowledge may mean knowledge divested of its technicalities, and then it is of great use, and to none more so than to those who already possess a solid acquaintance with the matter; but popular knowledge usually signifies vague and inexact knowledge—knowledge descending to the level of those ignorant of the subject. There are certainly no sound reasons for promoting the spread of this kind of knowledge. The practice of publishing Exhibition Reports should be resumed; they should be written up to the level of the best-informed men in each subject, and by the best men in the country, for the benefit, not of the general public, but of the men of business engaged in the trade. Whatever is done, let it be thorough and business-like. Popular knowledge may well be left to individual enterprise, to schools, newspapers, and periodicals, and there is certainly but little need of public help where individual enterprise can succeed.

Thorough reporting is not, however, the only means calculated to promote the diffusion of the results of the Exhibitions among the classes directly interested in the matter. A thoroughly systematic arrangement of the articles would allow of much greater benefit being obtained from a personal inspection than from the huddling them together in the usual way. In this respect the South Kensington Exhibitions are superior to those which have gone before them.

I would consider it useful to select each year, from the classes of the year, a certain small number of articles to be arranged as a Representative series upon absolutely scientific principles. The advantages derivable from such a Representative series would be so considerable that it is needless to insist on them. At the same time, the admission into it would be counted as a high award, and, in exchange for the loss of control over the articles admitted into it, the exhibitors might then be left free to arrange all their other articles themselves.

Other means of promoting and spreading industrial information are to be found in the example of the Moscow Exhibition of this year, where particular care was given to the representation of technical processes.

The Agricultural Exhibitions may suggest experimental trials with machinery and trials and experiments with new products. But transcending in importance all other proposals for making Exhibitions more useful to the community than they are at present is the proposal to render the result of each Exhibition permanent. M. Le Play, in his Report on the Paris Exhibition of 1867, strongly expresses the dissatisfaction which everybody must feel at seeing a great accumulation of fine subjects for study broken up long before they have been really utilised, nothing remaining behind but a few incomplete Reports; and he gives a description of what he calls General Museums and Commercial Museums, which would bodily preserve the most striking results of Exhibitions. The South Kensington Museum occupies to some extent a position of this kind as regards art, and this is one of the few instances in which the annual Exhibitions are to some slight extent utilised by acting as feeders to this Museum. The objects of the French proposals, which are rather extravagant, and as yet not sufficiently considered, may be attained in a more simple fashion by organising Trade Museums, containing collections of commercial samples, arranged in a business-like manner, and also Technical Museums. Some time ago, at the Society of Arts, I had occasion to show the important use which can be made of a description of Trade Museums, the compactness and cheapness of which would permit of their rapid multiplication. Great Technical Museums will be organised with more difficulty. But the peculiar concentration of various manufactures in certain localities in this country renders even an attempt of this kind easier than might be anticipated. Let there be one Technical Museum, devoted mainly to cotton, cotton products, and cotton machinery in Manchester, one devoted to wool in Leeds or Bradford, another to metals and metal-work in Birmingham, and so on, each absorbing from each new Exhibition whatever really important novelties have appeared. If Trade Museums and Technical Museums existed they would not only act in furtherance of trade and manufactures, but would allow of the introduction of a splendid system of commercial and technical education.

These few remarks indicate the great influence on the general community which these Exhibitions may be made to produce.

A few words will suffice to show the position of the bulk of the visiting public with respect to Exhibitions. It cares, as a rule, little about manufacturing or commercial specimens, not much about machinery unless in motion; but it attaches itself to all objects of direct human interest, such as Fine Arts, Ethnological Exhibitions, or Collections similar to the 'Histoire du Travail' at Paris in 1867. The directors of the approaching Vienna Exhibition have fully recognised the general tendencies of the public, and have taken steps to turn them to account. Special Exhibitions, like the arrangements of a farm-house or of a dwelling-house, showing, not uninteresting commercial samples, but various articles, placed under the usual conditions in which the visitor is accustomed to judge of them, educate his taste and knowledge as a consumer. This is no trifling object. There are few things of more importance to the honest manufacturer and

tradesman than that the buyer should be able to appreciate good quality in an article, else the honest man is placed at a disadvantage in comparison with one who undersells him by practising adulteration, or who is producing cheap articles without regard to make and solidity. Special exhibitions of objects which interest the general public either directly as consumers, or which illustrate some economical, social, or historical question which excites their interest, should occupy an important position in all great International Exhibitions.

Last, but not least, come the interests of the exhibitors. It is of the utmost importance to leave them as untrammelled in the arrangement of their own articles as possible. No doubt a scientific arrangement is desirable. Let this be indulged in the Representative series already mentioned. The Museums which will be the results and summaries, so to speak, of the Exhibitions, will be likewise strictly systematic; but no practical gain in arrangement will prove an equivalent for the bad blood created by too much interference with the individual exhibitor. The general impression prevails that at the present series of Exhibitions they have an insufficient amount of independence and free scope left to them. No doubt, in return for this, they are relieved both of trouble and of some expense; but it is, to say the least, quite an open question whether this is a move in the right direction. Exhibitors, as a rule, would prefer to have their own fingers in the pie, the plums for which they have provided.

Another practice abandoned at present might with advantage be re-established—namely, that of giving awards. The difficulty of a fair assessment should not stand in the way. I believe that, even in view of the chance of an occasional unfairness, the reinstatement of awards would be really appreciated.

There is a third question with regard to private exhibitors—one which made some noise about this time last year—namely, whether they should not get a more direct business interest in Exhibitions by being allowed to transact sales. There is no doubt that, in so far as articles which have already taken an assured place in commerce are concerned, the balance of argument is against allowing sales at Exhibitions, if for no other reason than that they will always be comparatively insignificant. But it will probably be admitted that the case is quite different as regards articles of undoubted merit which have not yet come to be known. I would therefore recommend the establishment of a Pioneer series, consisting of articles as yet untried in the London market, and I would allow them for a certain time the right of sale in the Exhibition.

In conclusion, I beg to recapitulate the chief heads of the classification underlying the suggestions in this letter:—

Manufactures and Products for the Year, consisting of a Representative series, and an Exhibitors' series.

Articles from the whole range of classes for the ten years' series, consisting of the Pioneer series, Artistic novelties, Inventions, and Discoveries, and new Raw Products; and, in addition, Special Exhibitions illustrating Social, Economical, Historical, and Natural History Subjects:—all these separate series acting as feeders to Artistic, Commercial, and Technical Museums, and thus rendering the results of each Exhibition permanently available for the use of the Community.

Athenæum Club, December 27, 1872.

III.

From the *Times*, 9th June, 1874.

The decision of Her Majesty's Commissioners for the Exhibition of 1851 has for the moment terminated the slow crisis through which the annual International Exhibitions at South Kensington have been passing. In so far as their decision bears on the past, everybody will concur in the wisdom of putting an end to the present series of Exhibitions. But how about the future? Are Exhibitions to be given up altogether? Has their usefulness been exhausted? Or are the same purposes to be obtained by different means?

This question must be considered in the light of two other facts. One is the determination of Her Majesty's Commissioners to devote their present Exhibition galleries for the location of permanent Museums for the promotion of technical and scientific education. The other is the movement which has been set on foot for the establishment of Museums throughout the country. Are Museums then to supersede Exhibitions, and to effect what Exhibitions promised, but have failed to achieve? I would be the last to invite at this time a discussion on the causes of the failure of the annual Exhibitions, if there were no other object than to point out the faults which have led to this result. Nothing is easier than to find fault after events have spoken. But in face of a movement, having in view the same purpose as that claimed by the now abandoned Exhibitions, it is surely advisable to look into their history, with the object of ascertaining whether, even in their failure, there may not be discernable conclusions which may prove useful guides for future actions.

In the two letters which you did me the honour to publish in *The Times* of the 28th and 30th of December, 1872, after stating the motives which led me to take a personal interest in the matter, I pointed out (1.) that the causes which insured the success of the first International Exhibitions were now no longer operative to the same extent; (2.) that in the plan of the South Kensington series the altered circumstances of the general economic position were not sufficiently taken into consideration, and that whatever merit their general design possessed, its promises were nullified by the absence of any systematic action for the actual accomplishment of the purposes claimed; and (3.) that, therefore, a new departure should be taken, on a basis more in accordance with the wants and tendencies of the present times. At the same time,

I attempted to indicate some of the chief features of the programme which would, in my opinion, tend to give to the Exhibitions a character of tangible and striking public usefulness, and which would reinlist on their behalf the public support which they had lost.

As connected with the subject of Museums I would remark that, as pointed out in the letters referred to, one of the main reasons why the recent Exhibitions produced so few practical results has been the absence of any permanent organization which would have for its object to collect systematically from each Exhibition the practical conclusions apparent from them, and to render them permanently useful by means of Trade and Technical Museums established in the principal seats of commerce and manufactures. But will not the inverted proposition be equally true, that by abandoning Exhibitions one would reject the very tool which would render it possible to organize such Trade and Technical Museums as would exercise a direct and powerful influence on commerce and manufactures?

This is the subject on which I propose to touch in the present letter, and I hope to be able to show that, although both Exhibitions and Museums may co-operate for the accomplishment of the same final purpose, their functions, nevertheless, are distinct. They differ as regards their means of action, and, though they may usefully supplement, they can never replace each other. A mere enumeration of the more obvious features of Museums and Exhibitions is sufficient to prove how different are the conditions under which each of these institutions performs its work. A Museum is a permanent institution, having exclusively in view objects of ascertained public utility, and being supported, as a rule, either by grants from Parliament, or municipalities, or by endowments, or by public subscriptions. The specimens contained in it are selected solely on account of their illustrating some particular type, either of a natural or manufactured product, duplicates being excluded. The permanent character of these institutions renders it possible to carry out a perfectly methodical classification and arrangement. Their chief merit consists in giving a representation of all the already acquired results in the branch of practical or theoretical knowledge to which they refer.

Exhibitions are in every respect the reverse of the above description. They are spasmodic, temporary efforts, making use of private interests, the individual interests of exhibitors and of visitors, for the promotion of a public end, their chief attractions being not systematic completeness or steady usefulness, but novelty and competition. If both Museums and Exhibitions are to produce an effect on technical education, it is obvious that it must be done by each in a very different manner. If technical education in the narrower sense is meant—that is, the imparting of a certain stock of information to those ignorant of the subject, then there can be no doubt that the systematic and permanent character of the Museums fits them very much better for this duty than the Exhibitions ever could be fitted, as their ephemeral nature alone would render any steady educational influence impossible. I have, therefore, for years past, advocated the use of Trade and Technical Museums whenever mere dissemination of practical knowledge among the bulk of the community is aimed at. To have ever attempted to make popular education of this kind the main object of International Exhibitions was a cardinal mistake which vitiated the whole enterprise. The conditions under which they occur, the brevity of their existence, the multiplicity of similar articles, the impossibility of a systematic arrangement, make it all but impossible that any profit should be derived from them except by those already acquainted with the subject. But to such an International Exhibition, if properly organised, might afford an unrivalled opportunity for increasing their knowledge. Exhibitions ought to be utilized less for the purpose of increasing the number of people possessed of technical education than for raising the level of knowledge among the classes already possessed of the fullest information regarding each of the subjects represented at the Exhibition. This information once acquired may then be rendered permanently available to the country by being embodied in Museums. These latter will thus gradually accumulate all the practical suggestions derived from the successive Exhibitions, and also supply the standards by which to judge future Exhibitions. The Exhibitions will thus become the feeders of permanent Museums, which will capitalize and bring into circulation their results. There can be no doubt that Museums recruited in this manner by international competition, and expressing the last results obtained by an international survey of each subject, will be far more efficient institutions for all practical purposes than if they are left unconnected with Exhibitions, and it is only on this ground, namely, in order to obtain efficient and practical Museums, that I would advocate the maintenance of Exhibitions.

There are one or two remarks more to be made with respect to the organization of Museums. The first is, that the Museums here kept in view are such as would have a direct bearing on commerce and manufactures, affording opportunities of instruction to the manufacturer, to the merchant, and to the skilled workmen, in short, to men actually engaged in business; and not merely popular Museums for the elementary teaching of some of the practical sciences to school boys or to the general public. These latter are much more easily organized than the former, but they certainly cannot claim to replace in any sense the influence of Exhibitions. The other remark is that, as pointed out in my previous letters, the establishment of great technical Museums is rendered in this country easier than might be anticipated, from the peculiar centralization of certain manufactures in certain localities. Thus a technical Museum, mainly devoted to cotton products and cotton machinery, might be established at Manchester; one devoted to wool in Leeds or Bradford, another to metals and metal work in Birmingham, each absorbing from each new Exhibition whatever really important novelties had appeared in it. Lastly, many trade and technical collections are capable of being easily reproduced, so that identical sets of the same collections may be widely distributed, thus rendering the work, when once effected, available for the country at large.

The progress of Museums having been shown to be dependent on the existence of successful International Exhibitions, it may be well, before concluding, to repeat here the main points in the programme for future Exhibitions of this kind sketched in my former letters on the

subject:—(1.) It must, at the outset, be admitted that a respite of a few years will be desirable on many grounds. On the one hand, people are now tired out by the constant repetition of Exhibitions, the chief features of which hardly change; and, on the other, some time is required before a new organization could be brought into action; and, finally, there would be required, in addition to the present Exhibition galleries, a spacious central hall, which would require some time for its erection. (2.) The plan, followed in the present series of annual Exhibitions, that of embracing, in addition to a group containing artistic or scientific novelties, only a few groups of manufactures at a time, appears in every way a practical one if well executed. There is no valid reason why an iron and steel, or a silk and velvet, or a lace Exhibition should tire the public when it is considered that these will only recur at intervals of ten years. The practical application of the ten years system requires, however, considerable amendment. The yearly fine art group should be discontinued, and International Exhibitions of pictures and statuary should recur at the same periods as all the other groups. By making the manufacturing groups of each year the main feature of the Exhibition, and by organizing them in a thorough manner, the Exhibitions will be able to dispense with the yearly pictures, statues, music, and other *attractions* throwing into shade their real purpose, and will sufficiently possess the characteristics of novelty essential for success. (3.) As previously remarked, the Exhibitions should be organized for the benefit of those who already possess the highest skill and knowledge. The best intellect should be procured for perfecting all the arrangements, facilitating the survey of all the accumulated materials, for instituting experiments and competitive trials whenever feasible, and for the issue of reports, embracing the chief results of the Exhibitions, written up to the level of the best informed men in each special subject. These reports would also form the basis for the selection of the articles for the permanent Museums. There is no reason to apprehend that Exhibitions will suffer in popularity by such a proceeding. Popularity, like happiness, is never so difficult of attainment as when directly aimed at. Let those whom public opinion accepts as authorities in each line be convinced of the thorough and useful character of the Exhibitions, and the public is sure to follow. (4.) The Exhibition itself would consist of several more or less independent series, each arranged with the special purpose of being most useful to the classes most interested in their execution.

There would be first the *Manufacturing Series*, consisting of the products, manufactures, and machinery of the current year. No pedantic classification should be attempted; indeed, the nearest approach to the actual trade divisions would be the most convenient grouping. The utmost latitude should be allowed to exhibitors in the way of arrangement, and the practice of awarding medals might be re-established with the view of giving an additional stimulus to competition, which is the chief characteristic of this series.

The next series would be the *Pioneer Series*, combining all artistic novelties, or scientific and mechanical inventions, as well as products recently brought into market. The privilege of effecting sales should be accorded to the exhibitors in this series, as in the case of articles not yet established in the market there could be no chance of an unfair competition with outsiders.

The third series would be the *Representative Series*, consisting of articles selected from the two preceding ones on account of special merit, and arranged according to a methodic system of classification, thus summarizing and rendering intelligible to the public the chief results of the Exhibition. The admission into the representative series, which would occupy the great hall of the Exhibition, would be in itself counted as a high distinction, and at the close of the Exhibition the specimens in this series might, in many instances, pass immediately into the permanent Museums.

The fourth and last series would be the *Domestic or Social Series*, representing the articles in their daily use, and as far as possible among their usual domestic surroundings; that is in the manner in which they are most likely to interest the public, and to educate it in its capacity of a consumer. Special collections, illustrating some special point of history, ethnology, political economy, or art would also fall under this head, all appealing directly to the sympathies of the general public.

I am hopeful that such a programme would go far towards satisfying each of the special interests concerned in Exhibitions, means being adopted to further the particular purpose of each. The character of Exhibitions as public institutions of national importance would be maintained by the systematic and visible utilization of their results, for the sake of promoting the increased introduction of science and art in our manufactures; while ample room would be given to the individual interests of the exhibitors and visitors.

In conclusion, I would express my belief that some such programme as that here indicated will in time be carried out, even if in detail, by several independent agencies, because its basis is indestructible, being founded in the motives which form the permanent springs of action of large classes of the community, which in a progressive society like ours *will* receive satisfaction. The desire of exhibitors for distinction, that of inventors and discoverers for public introduction, the desire of the general public for instruction, of the special trades for technical education, of the statesman and political economist for a comparative survey of international trade, are motives sure to reassert themselves in some shape or other. The present opportunity seems to me favourable for making use of all these special tendencies and for making them co-operate to the same end.

Athenæum Club, June 1874.

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ON THE
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OF THE
INDIA MUSEUM AND LIBRARY,
WITH
SUGGESTIONS FOR THE FOUNDATION, IN CONNECTION
WITH THEM,
OF AN
INDIAN INSTITUTE
FOR
ENQUIRY, LECTURE, AND TEACHING.

BY

J.F.W.
J. FORBES WATSON, M.A., M.D., &c.

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