

(1) Number of pages 15.2(2) Date of repair 18.5.62(3) Initials of the Referencer by 5/18/62

MADRAS RECORD OFFICE

Government of Madras

Revenue

DEPARTMENT

G.O. No. 1330
B.P. No.Press
Mis.Dated 28. 11. 1982

195

Not to be folded or roughly handled

CONFIDENTIAL.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following papers:—

Extract from the Report of the Indian Famine Commission, forwarded with letter from Government of India, (Home, Revenue, and Agricultural Department), dated 8th February 1881, No. 6-157.

CHAPTER VI.

SECTION I.—ENCOURAGEMENT OF DIVERSITY OF OCCUPATIONS.

We have elsewhere expressed our opinion that at the root of much of the poverty of the people of India and of the risks to which they are exposed in seasons of scarcity lies the unfortunate circumstance that agriculture forms almost the sole occupation of the mass of the population, and that no remedy for present evils can be complete, which does not include the introduction of a diversity of occupations, through which the surplus population may be drawn from agricultural pursuits, and led to find the means of subsistence in manufactures or some such employments.

2. It will be almost self-evident that such a change in the condition of the people could not be brought about by any direct action of the State, and that there would be much risk of interference of this description, discouraging the spread of sound principles of trade and retarding the operation of private enterprise. So far as we are able to form an opinion on a question so difficult of solution, the desired result can only follow upon an increased desire to apply capital to industrial pursuits in India, which again will be a consequence of a growing conviction that adequate profits may be secured on investments, under a condition of continued peace and good government.

3. The State should certainly use its utmost endeavours to assist in the preparation of the country for reaching such an advanced condition; but it will, we believe, be by indirect means, such as the extension of railways and the development of local trade and foreign commerce, that the end will be attained rather than by any attempts to give adventitious aid to particular branches of industry. Capital will accumulate in the country, or will flow into it for investment in proportion as security is maintained and facilities for obtaining profitable markets for all sorts of produce are enlarged.

4. The obstacles that stand in the way of the investment of English capital in India, such as the climate, the distance, and the want of exact knowledge of the country, are still very great, and it may be feared that the disinclination to risk such investments has been rather increased than diminished by the system of giving a guarantee of interest at a high rate on the large capital of the great railways. So long as the opportunity was afforded to capitalists to make advantageous investments on a large scale on the security of the State, the inducement to attempt any enterprise without such security must have been greatly diminished.

5. Looking to the very great importance of fostering the growth of diverse branches of industry, we should see with satisfaction any steps taken which would

tend to it, but we are satisfied that the circumstances can now hardly arise in which the Government could beneficially extend any system of guarantee to such undertakings for the purpose of encouraging their introduction, or should otherwise offer direct assistance to them. Direct State aid could not be given without some corresponding power of control or interference, and the exercise of any such power would be almost certainly incompatible with the successful management of industrial occupations. It is probable, moreover, that the whole available means of the State will yet be required for many years, either for railway extension, with or without the co-operation of private enterprise, or for the extension of irrigation works which are no less necessary, and which experience has shown to be unsuited for management by private companies.

6. There are, however, directions in which we have no doubt the Government might usefully aid in fostering the inception of new industries. The introduction of tea cultivation and manufacture is an instance of the successful action of the Government, which should encourage further measures of a like character. In this case, the Government started plantations, imported Chinese workmen, distributed seed, and brought the industry into a condition in which its commercial success was no longer doubtful. It then retired from any share in it, sold its plantations, and left the field to private capitalists. The cultivation of Clinchona is a measure of a somewhat similar description, though it has not yet passed entirely into the hands of private persons.

7. In treating of the improvement of agriculture, we have indicated how we think the more scientific methods of Europe may be brought into practical operation in India by help of specially-trained experts, and the same general system may, we believe, be applied with success both to the actual operations of agriculture and to the preparation for the market of the raw agricultural staples of the country. Nor does there appear any reason why action of this sort should stop at agricultural produce, and should not be extended to the manufactures which India now produces on a small scale or in a rude form, and which, with some improvement, might be expected to find enlarged sales, or could take the place of similar articles now imported from foreign countries.

8. Among the articles and processes to which these remarks would apply may be named the manufacture and refining of sugar; the tanning of hides; the manufacture of fabrics of cotton, wool, and silk; the preparation of fibres of other sorts, and of tobacco; the manufacture of paper, pottery, glass, soap, oils, and candles.

9. Some of these arts are already practised with success at Government establishments, such as the tannery at Cawnpore, which largely supplies harness for the army, and the carpet and other manufactures carried on in some of the larger jails, and these institutions form a nucleus around which we may hope to see a gradual spread of similar industry. They afford practical evidence of the success of the arts practised and are schools for training the people of the country in improved methods; and so long as any such institutions fairly supply a Government want, which cannot be properly met otherwise, or carry on an art in an improved form, and therefore guide and educate private trade, their influence can hardly fail to be beneficial. The same may be said of the workshops of the Government and the railway companies, which are essential for the special purposes for which they are kept up and gradually train and disseminate a more skilled class of artisans.

10. The Government might further often afford valuable and legitimate assistance to private persons desiring to embark in a new local industry or to develop and improve one already existing by obtaining needful information from other countries or skilled workmen or supervision, and at the outset supplying such aid at the public cost. So far as the products of any industries established in India can be economically used by the Government, they might properly be preferred to articles imported from Europe, and generally the local markets should be resorted to for all requisite supplies that they can afford. We are aware that steps have been taken within the last few years to enforce these principles, but more certainly be done and greater attention may properly be paid to the subject.

11. Otherwise than as above indicated, we do not think it desirable that the Government should directly embark in any manufacture or industry in an experimental way. Such experiments to be really successful or valuable must be carried out on a commercial basis. The conditions of any Government undertaking are rarely such as to give it this character, and the fear of incurring an undue expenditure on what is regarded as only an experiment will often lead to failure, which will be none the less mischievous because it was thus caused.

12. There is no reason to doubt that the action of Governments may be of great value in forwarding technical, artistic, and scientific education, in holding out rewards for efforts in these directions, and in forming at convenient centres museums or collections by which the public taste is formed and information is diffused. The great industrial development of Europe in recent years has doubtless received no small stimulus from such agencies; and the duty of the Government in encouraging technical education is one to which the people of England are yearly becoming more alive, and which, it is certain, will be more adequately performed in the future. All the causes which render such action on the part of Governments desirable in Europe apply with greater force to India. Experience, however, is still wanting, even in England, as to how such instruction should be given, and for India it will be hardly possible at present to go beyond the training of ordinary workmen in the practice of mechanical or engineering manipulation.

13. To whatever extent it is possible, however, the Government should give assistance to the development of industry in a legitimate manner and without interfering with the free action of the general trading community, it being recognised that every new opening thus created attracts labor which would otherwise be employed to comparatively little purpose on the land, and thus sets up a new bulwark against the total prostration of the labor market, which, in the present condition of the population, follows on every severe drought.

NOTES ON THE PROPOSED SURVEY OF THE NATURAL HISTORY OF SOUTHERN INDIA.

General Remarks.—The importance of a thorough scientific investigation of the natural history of Southern India can hardly be overestimated. Individual workers in the past have, no doubt, done a great deal more perhaps than in any foreign part of Her Majesty's Empire, but science has made such advances since these distinguished men conducted their gratuitous investigations, that the work accomplished by them needs, to a certain extent, verification and revision. As a rule, too, they could only devote a portion of their time to their self-imposed tasks, and, owing to this and the vast and varied nature of the country to be explored, the investigations of these pioneers were necessarily of a limited character.

Of late years the special agencies at work on the rich mine of South Indian natural history have been the *Geological Survey*, the *Museum*, and, to a certain extent, the *Forest Department*. As regards the Geological Survey, it has, from an imperial point of view, done admirable work, but it has not had the time, nor has the nature of its inquiries tended directly to the disclosure in detail of the mineral wealth of districts and provinces. What it has accomplished in systematic geology has been embodied in that splendid work the "*Manual of the Geology of India*," to which a third volume has been added, treating of the economic portion of the subject, so far as known. What is now wanted, as regards our mineral wealth, is a more detailed survey of the country, and the collection and arrangement in the local Museum of specimens, so as to enable the student to acquaint himself with the leading facts regarding the geological formations and mineralogy of Southern India, and to afford the miner, merchant, &c., the preliminary information they require. It is further our duty, as a civilised Government, to make patent the mineral treasures of the country to the scientific world. Something has already been done towards these ends by the Museum, but the specimens hitherto collected by the Geological

Survey have been transferred to a general collection in Calcutta. This, no doubt, has been necessary in carrying out an imperial survey, as many things could only be properly worked out by experts at head-quarters, but local wants now require attention.

As regards the Museum, one of its objects has been to illustrate the natural history of Madras by the collection, preservation, naming and scientific arrangement of specimens. It has also endeavoured to increase the instructive value of these by the acquisition of objects from other parts of the world, and to make South Indian specimens common scientific property by carrying out exchanges.

It has steadily labored to increase its local collections by employing collectors, but these men, from the limited resources at command, have had no knowledge beyond that necessary to enable them to preserve specimens coming in their way, nor could they, as a rule, distinguish novelties from objects already in the Museum, so that in this way much labor and time and material have been needlessly expended in accumulating duplicates. As regards the superior staff, it has been, and must be constantly occupied at head-quarters in working the institution, although the Superintendent has generally endeavoured to spend one or two months annually in making collections at a distance from Madras. As the operations of the Museum are not confined to natural history, and as each branch of its work requires special attention, efforts have been made to train the Assistants, so that each might, as far as possible, undertake the care of one or two departments. This arrangement has been so far successful, but the need is constantly felt of having some one in the field capable of appreciating and meeting the wants which are discovered as work proceeds, and of relieving the Museum staff of much of the heavy labor and responsibility of identifying specimens. The plan has hitherto been for an Assistant to go over the ground in advance, and for the Superintendent to take up the various sections thereafter in rotation, the more urgent receiving attention first. It need hardly be said that progress has been slow owing to the magnitude of the task and the impossibility of one or two officials making themselves thoroughly acquainted with the numerous subjects which claim their attention in such a large institution. With well-qualified naturalists working in the field, and in the Museum during recess, the staff would be relieved of much of the preliminary work with which they have now to grapple, and have more leisure to attend to the arranging, cataloguing, &c., of the collections, so as to realise their scientific value and increase their educational and economic importance.

The Forest Department has also done valuable work in identifying timber trees, and the elaborate forest floras compiled by members of the staff are of much practical scientific value. It has also placed in various Museums admirable collections of authenticated specimens of indigenous woods. The existence of such botanical knowledge in the Forest Department must, however, be regarded as exceptional. A great deal yet remains to be done towards the identification and utilisation of little known jungle products, and there can be no doubt that some of these are destined, in course of time, to create new industries. But here as in the other sections—animal and mineral—a scientific survey, embracing the collection and exhibition of specimens, must be the precursor of industrial development. Amid the ever-increasing wants of civilisation and the refinements of chemistry and mechanical art, it is hard to say what articles may not be utilised and made sources of wealth to the country. It is most important, therefore, that we should take stock of our natural wealth, including things that may at present appear trivial and useless.

Mineral Products.—Although the "Manual of the Geology of India" has given us general information, much more is still needed in detail. In short, mineralogy is a science in itself, and, in its present developments, requires undivided attention and special training. The facts brought to light by the investigations of mining engineers and others interested in the gold and diamond fields of Southern India, may serve as an illustration of what remains to be done, even in tracts that may have come under the observation of the Geological Survey. As already stated, the geologist cannot spare the time necessary for detailed inquiry, but must be content with illustrating the broad features of the systematic geology of

the country,—a task which has been done in a manner that has commanded the admiration of fellow-workers in every part of the world. The work thus accomplished has paved the way for minute inquiry into the mineral wealth of Southern India, and such an investigation may now be conducted with facility and celerity. We know of the existence of gold, iron, copper, &c., but we need further precise information as to the nature of the ores, the localities in which they exist, and the extent of the deposits. The detailed natural history of our constructive and decorative materials, such as granite, gneissic rocks, quartzites, limestones, laterite, marbles, and such like is also required. Equally information needed regarding the rarer and more valuable minerals used for personal ornament, and for the production of some of which India has long been famous. A better knowledge of the substances employed in the making of cements, and for the manufacture of pottery and glass would also be of great industrial value to India at the present day. Of late years various minerals have become of great importance owing to their chemical composition, and it can hardly be supposed that a systematic survey would fail to detect the existence of some of these in so vast a field as Southern India, or to discover others equally valuable for chemical manufactures. These remarks contemplate chiefly the economic importance of such an inquiry, but it is equally necessary from a scientific point of view, as our knowledge of the mineralogy of the Madras Presidency is still vague and imperfect, and a scientific collection of local specimens urgently required. Such a survey and collection would not only be of immense value to India, but to every quarter of the world where science is cultivated.

Animal Kingdom.—The natural history of the mammals of Southern India has been worked out by various naturalists, and Jerdon's work embodies all the information that was available when he wrote. A good deal now requires to be done in the revision of species and nomenclature, and many fresh facts have to be garnered and made available to the ordinary student and inquirer. As regards the birds of the Peninsula, a thorough revision of Dr. Jerdon's nomenclature and species is perhaps even more necessary than in the case of the mammals. Mr. A. O. Hume, one of the many amateur naturalists, who have done so much in India, has long been working at this section of the fauna, but the scene of his investigations has been more especially the northern parts of the country. The presence of a field naturalist is, therefore, much required, not only to revise and increase our knowledge of the birds which permanently inhabit or periodically visit the Southern Presidency, but more particularly to ascertain the geographical distribution of species, to investigate their habits, and to give the agriculturist practical information as to the individuals that are usefully protecting his crops from the ravages of insects. Search in our forest tracts and hill regions is sure to be amply rewarded, as there man has had less chance of interference than in cultivated districts. Many important biological questions, especially regarding the reproduction of mammals and birds, also await the patient investigation of a competent observer.

As regards the fishes of India, Dr. Day's great work probably embraces most of the species that exist in southern fresh waters, but novelties are sure to be found amongst the salt-water inhabitants, and a great deal has yet to be learned regarding the numbers, geographical distributions, habits and migration of fishes. Such an inquiry would form a fitting basis for an estimate of the value of our fishes as articles of food,—more especially in times of scarcity,—and as sources of products useful in the arts. The protection and culture of indigenous, and introduction of foreign, species are also important considerations, and questions that can only be satisfactorily settled on a scientific foundation. Much has also to be learned regarding the reptiles of Southern India, and there can be no doubt that systematic search will be rewarded by the discovery of a great number of species new to science, more especially amongst the batrachia. The mollusca on account of the beauty of their tenements, and the ease with which shells can be preserved, have always been favorite objects with amateur collectors, but the field of scientific inquiry is far from exhausted, and much valuable information has also to be elicited regarding the gastronomic value of shell-fish, and the artistic uses of the beautiful nacreous lining of many of their shells. With respect to insects, a splendid field awaits the

naturalist, not only on the arid plains of the eastern portion of the country, but also on the moist western coast, and in the mountain regions and various forest tracts of the Presidency. The collections of specimens hitherto acquired in these localities have generally been small, and made mostly by unqualified observers, so that a rich harvest awaits scientific inquiry. On the hills and in the forests not only will varieties of insects, common on the plains, but specialised to live under changed conditions, be found, but also species peculiar to these regions and others indicative of geographical relations that have long ceased to exist. In fact, these points and the general subject of the geographical distribution of insects in Southern India have yet to be worked out. As regards the habits of our insects, very little is known, and ignorance very often regards as hurtful individuals that protect our books, clothing, crops, &c., from the ravages of destructive kinds. Again, as regards the locust, which periodically devastates our fields, nothing certain is known as to whether it is a permanent resident multiplying rapidly under favorable conditions, or a visitor from some distant quarter where it has its perennial abode. In certain seasons also other insects destructive to coffee, sugar-cane or rice appear in amazing numbers, and we can rarely say why they increase to such an extent and show such a predilection for the fruits of man's industry. Nothing but a careful study of their habits will enable us to combat the visitations of these insect-pests; and, as an example of what may be done in this direction, it may be mentioned that the simple discovery in 1867 that the coffee-borer did not live under the shade of forest trees, saved that industry from ruin. The industrial value of certain insects is also of great importance, and it is desirable to know more regarding our silk-worms and bees, and whether an indigenous cochineal insect may not be profitably cultivated. These illustrations, which might be greatly multiplied, of our ignorance are given here to show the immense practical results that would ensue from a more extended and accurate knowledge of the insect-life of this part of India. As regards other sections of our *Arthropoda*, such as scorpions, spiders, myriopoda and crustacea, we know very little. One scorpion, the *Androctonus quinquestriatus*, *Ehrenberg*, found in the Kurnool District, has lately become notorious, as the Police report that numbers of persons perish annually from its sting. Other groups, lower in the animal kingdom, such as *Vermes*, *Echinodermata*, *Calenterata* and *Protozoa* have received very little attention.

These remarks will, it is hoped, show how much has yet to be done in the mere collection and identification of species. Besides that there are many biological and other questions that would press themselves on the notice of naturalists investigating the natural history of the Madras Presidency. As examples of biological questions, the subjects of embryology, protective and warning colors, and the relations of animals to their surroundings may be mentioned. The geographical distribution of the fauna, and the indications afforded by certain species of remote geographical changes, will also be found fertile and interesting fields of inquiry.

It is hoped that the necessity for a scientific survey of the mineral wealth and fauna of Southern India has been made obvious by these brief remarks; and, in conclusion, I would merely observe that its execution appears to me an imperative duty—

- (1st) as a tribute which we owe to science;
- (2nd) as a means of educating the people whom we rule; and
- (3rd) with the object of bringing to light articles which may become sources of wealth to the country.

To attain these aims we must further have a complete collection of specimens carefully identified and systematically arranged. To a country like India the economic aspect of the inquiry is perhaps the most pressing, but if the working out of this be left, as hitherto, to private enterprise, it will take the efforts of generations to secure the results that will immediately ensue from a careful scientific survey.

OOTACAMUND,
11th October 1882.

(Signed) G. BIDIE.

ORDER—dated 28th November 1882, No. 1330, Revenue.

Miscellaneous.

No. 6-157, dated 8th February 1881, Home, Revenue, and Agricultural Department.

The important subject discussed in the extract from the Report of the Indian Famine Commission, forwarded with the letter from the Government of India noted in the margin, has received the careful consideration of the Right

Honorable the Governor in Council, and he now proposes to put on record the conclusions at which he has arrived.

2. His Excellency in Council entirely agrees with the Famine Commissioners that it is desirable to foster the introduction or development of a diversity of occupations in this part of India, and is no less persuaded that they are right in saying that the desired result can only follow upon an increased disposition "to apply capital to industrial pursuits in this Presidency, which, again, will be a consequence of a growing conviction that adequate profits may be secured on investments under a condition of continued peace and good government."

3. There seems no doubt that capital is slowly flowing into Southern India. The increased cultivation of Chinchona, the gold enterprise in the Wynaad, and other similar facts are at hand to show it.

4. The Famine Commission has, however, put its finger upon the real obstacle that stands in the way of the investment of English capital in these regions, when it calls attention to the want of exact knowledge of the country. True it is that much is known about it; but there are vast gaps in our knowledge, and no sensible capitalist will risk his fortune upon a series of perhapses.

5. In the Note by Surgeon-Major Bidie, read at the commencement of these Proceedings, will be found a number of instances of imperfect knowledge, both scientific and economic, to which it would be perfectly easy to make large additions.

6. It may, for instance, be asserted, with the utmost confidence, that there is no single district under the Government of Madras in which a trained expert, such as Sir George Birdwood or Mr. Purdon Clarke, who visited India last winter, would not, after a study of a few weeks, be able to bring to the notice of even the ablest district officers, a variety of products, manufactured or unmanufactured, and possessing a marketable value, with which these gentlemen were unacquainted, while no information is possessed by any one at the centre of affairs, which can supplement the ignorance prevailing amongst the local depositories of power.

7. The Government have, no doubt, in the Madras Museum the commencement of an admirable index of the products of this Presidency, but it is an index very far, indeed, from being complete, while what is really wanted is a place to which the agent of any capitalist can go and see at a glance how far Madras can assist him in his objects.

8. His Excellency in Council is far, indeed, from doubting that the greater part of the available means of the State will be required, for many years, for the extension of irrigation and of railways, with or without, in either case, the co-operation of private enterprise, nor has he anything to say against the wisdom of Government, in certain rare and exceptional cases, directly engaging in industrial pursuits, provided always it gets out of them as soon as it conveniently can, having regard to all relevant circumstances, after the industry in which it has been a pioneer has been successfully established. It is, however, to the kind of work indicated in paragraphs 10, 11, and 12 of the extract forwarded by the Government of India that His Excellency in Council is disposed to attach for the present most importance. He is rejoiced to see the steps lately taken by the Government of India to give, *ceteris paribus*, preference to Indian articles; and he would, with the Famine Commissioners, be prepared to assist new local industries by obtaining needful information from other countries or skilled workmen and supervision. It is quite possible, for instance, that it might be right to do something of this kind hereafter for the iron industry in Salem and Bellary. But the main work of a Government

is to do what can be done by no other agency, and one of these things, in a country like India, is the collecting, storing, and making available full and correct information.

9. Within the last few weeks, the Forest Department in this Presidency has been, by the permission of the Government of India, put on a new and more scientific basis. A European botanist of considerable reputation is being sent out by the Secretary of State, and an Agricultural Department has been called into existence.

10. It may then be assumed that the collection in Madras of important facts in relation to one large department of human knowledge will go on more satisfactorily than it has hitherto done, and the only thing wanted in this connection is to unite the Madras Museum more closely with the Botany, Forestry, and Agriculture of the Presidency. This need cost little, but it should be carried into effect while that Institution is under its present excellent head. Much, however, remains to be done. In the first place, the Government want to know, and do not know, all the manufactured articles which the Presidency produces, where they are produced, at what cost, and which of them are likely to be saleable in Europe. It is confidently believed that a considerable trade would spring up between not London only but various other capitals and Madras, if it were easy to procure all the articles which are even now manufactured in this Presidency, the first want of which would seem then to be a careful examination of the whole country by such an expert as the gentleman who was last year sent out from South Kensington by the Lord President of the Council.

11. Again, the Geological Survey of India has done admirable work in Madras as elsewhere; but its labors, if they are to be useful to the capitalist, should be supplemented by those of the mineralogist, whose attention would be directed, not to the broad outlines of the landscape and their underlying causes, but to the particular products of particular districts. It is believed that many decorative and constructive materials of value lie unworked and unknown, awaiting the attention of the expert, who shall supply possible investors with requisite knowledge as to the quality, locality, and extent of existing deposits.

12. The second want seems then to be a thorough examination of the Presidency by a competent mineralogist.

13. It will be observed that a considerable portion of Dr. Bidie's paper, read above, refers to natural history, and there can be no doubt that an examination of the Presidency by several competent persons, with reference to the economic aspects of the various sciences which are popularly included under that head, would be of great value. His Excellency in Council hesitates, however, to make any definite proposal with reference to this subject, until the results of the suggestions which he is about to make become visible.

14. The definite proposal, accordingly, which he makes is the temporary appointment, at an early date, of a Government Reporter on Arts and Manufactures, and a Government Mineralogist for the Madras Presidency.

15. If this proposal commends itself to the Government of India, the pay and allowances of these officers could be subsequently arranged. It will suffice here to remark that both should be fixed on the liberal scale required to bring from Europe, for a short term of years, men of high acquirement and energy, capable of communicating the knowledge they possess in such a clear and acceptable form as will allow of its being readily assimilated by the public and turned to practical advantage. The Government would propose that these officers should travel throughout the Presidency, and report to them every two months, chiefly, of course, on the economic aspect of their subjects. Their reports would be usually published soon after they were revised, and would pass into general circulation. The Government Museum at Madras would be a centre at which reports would be digested and specimens collected. Although science would thus be promoted, this is not the main end Government propose to accomplish by the scheme sketched in these proceedings. The chief end in view is the collection, in the manner indicated, of a body of information which would be of money-value to the Presidency and to the

Executive. No time could be better suited than the present to launch such a scheme while home manufacturers are demanding new raw or half-prepared products, and the interest in Indian manufactures is unusually great. If the necessary inquiries be left to private enterprise, it is believed by His Excellency in Council that it will take the efforts of several generations to secure the results that would immediately ensue from a careful, scientific, and industrial survey, the commencement of which he now proposes.

(True Extract.)

(Signed) E. F. WEBSTER,
Secretary to Government.

Gobt. of (1882) Madras.
REVENUE.

Issued

Recd.

Encl.

G.O., 28th November 1882, No. 1330.

NOVEMBER.

Diversity of Occupations.

Views of Government as to the desirability of encouraging a — and the development of new branches of industry in India, and its suggestions to that end.

NOTES ON THE PROPOSED SURVEY OF THE NATURAL HISTORY
OF SOUTHERN INDIA.

General Remarks.—The importance of a thorough scientific investigation of the natural history of Southern India can hardly be overestimated. Individual workers in the past have, no doubt, done a great deal, more perhaps than in any foreign part of Her Majesty's Empire, but science has made such advances since these distinguished men conducted their gratuitous investigations, that the work accomplished by them needs, to a certain extent, verification and revision. As a rule, too, they could only devote a portion of their time to their self-imposed tasks, and, owing to this and the vast and varied nature of the country to be explored, the investigations of these pioneers were necessarily of a limited character.

Of late years the special agencies at work on the rich mine of South Indian natural history have been the *Geological Survey*, the *Museum* and, to a certain extent, the *Forest Department*. As regards the Geological Survey it has, from an imperial point of view, done admirable work, but it has not had the time nor has the nature of its inquiries tended directly to the disclosure in detail of the mineral wealth of districts and provinces. What it has accomplished in systematic geology has been embodied in that splendid work the "*Manual of the Geology of India*," to which a third volume has been added, treating of the economic portion of the subject, so far as known. What is now wanted, as regards our mineral wealth, is a more detailed survey of the country, and the collection and arrangement in the local Museum of specimens, so as to enable the student to acquaint himself with the leading facts regarding the geological formations and mineralogy of Southern India, and to afford the miner, merchant, &c., the preliminary information they require. It is further our duty as a civilised Government, to make patent the mineral treasures of the country to the scientific world. Something has already been done towards these ends by the Museum, but the specimens hitherto collected by the Geological Survey have been transferred to a general collection in Calcutta. This, no doubt, has been necessary in carrying out an imperial survey, as many things could only be properly worked out by experts at head-quarters, but local wants now require attention.

As regards the Museum, one of its objects has been to illustrate the natural history of Madras by the collection, preservation, naming and scientific arrangement of specimens. It has also endeavoured to increase the instructive value of these by the acquisition of objects from other parts of the world, and to make South Indian specimens common scientific property by carrying out exchanges.

It has steadily labored to increase its local collections by employing collectors, but these men, from the limited resources at command, have had no knowledge beyond that necessary to enable them to preserve specimens coming in their way, nor could they, as a rule, distinguish novelties from objects already in the Museum, so that in this way much labor and time and material have been needlessly expended in accumulating duplicates. As regards the superior staff, it has been, and must be constantly occupied at head-quarters in working the institution, although the Superintendent has generally endeavoured to spend one or two months annually in making collections at a distance from Madras. As the operations of the Museum are not confined to natural history, and as each branch of its work requires special attention, efforts have been made to train the Assistants, so that each might, as far as possible, undertake the care of one or two departments. This arrangement has been so far successful, but the need is constantly felt of having some one in the field capable of appreciating and meeting the wants which are discovered as work proceeds, and of relieving the Museum staff of much of the heavy labor and responsibility of identifying specimens. The plan has hitherto

been for an Assistant to go over the ground in advance, and for the Superintendent to take up the various sections thereafter in rotation, the more urgent receiving attention first. It need hardly be said that progress has been slow owing to the magnitude of the task and the impossibility of one or two officials making themselves thoroughly acquainted with the numerous subjects which claim their attention in such a large institution. With well-qualified naturalists working in the field, and in the Museum during recess, the staff would be relieved of much of the preliminary work with which they have now to grapple, and have more leisure to attend to the arranging, cataloguing, &c., of the collections, so as to realise their scientific value and increase their educational and economic importance.

The Forest Department has also done valuable work in identifying timber trees, and the elaborate forest floras compiled by members of the staff are of much practical scientific value. It has also placed in various Museums admirable collections of authenticated specimens of indigenous woods. The existence of such botanical knowledge in the Forest Department must, however, be regarded as exceptional. A great deal yet remains to be done towards the identification and utilisation of little known jungle products, and there can be no doubt that some of these are destined, in course of time, to create new industries. But here as in the other sections—animal and mineral—a scientific survey, embracing the collection and exhibition of specimens, must be the precursor of industrial development. Amid the ever-increasing wants of civilisation and the refinements of chemistry and mechanical art, it is hard to say what articles may not be utilised and made sources of wealth to the country. It is most important, therefore, that we should take stock of our natural wealth, including things that may at present appear trivial and useless.

Mineral Products.—Although the "Manual of the Geology of India" has given us general information, much more is still needed in detail. In short, mineralogy is a science in itself, and, in its present developments, requires undivided attention and special training. The facts brought to light by the investigations of mining engineers and others interested in the gold and diamond fields of Southern India, may serve as an illustration of what remains to be done, even in tracts that may have come under the observation of the Geological Survey. As already stated, the geologist cannot spare the time necessary for detailed inquiry, but must be content with illustrating the broad facts of the systematic geology of the country—a task which has been done in a manner that has commanded the admiration of fellow-workers in every part of the world. The work thus accomplished has paved the way for minute inquiry into the mineralogical wealth of Southern India, and such an investigation may now be conducted with facility and celerity. We know of the existence of gold, iron, copper, &c., but we need further precise information as to the nature of the ores, the localities in which they exist and the extent of the deposits. The detailed natural history of our constructive and decorative materials, such as granite, gneissic rocks, quartzites, limestones, laterite, marbles, and such like is also required. Equally is information needed regarding the rarer and more valuable minerals used for personal ornament, and for the production of some of which India has long been famous. A better knowledge of the substances employed in the making of cements, and for the manufacture of pottery and glass would also be of great industrial value to India at the present day. Of late years various minerals have become of great importance owing to their chemical composition, and it can hardly be supposed that a systematic survey would fail to detect the existence of some of these in so vast a field as Southern India, or to discover others equally valuable for chemical manufactures. These remarks contemplate chiefly the economic importance of such an inquiry, but it is equally necessary from a scientific point of view, as our knowledge of the mineralogy of the Madras Presidency is still vague and imperfect, and a scientific collection of local specimens urgently required. Such a survey and collection would not only be of immense value to India, but to every quarter of the world where science is cultivated.

Animal Kingdom.—The natural history of the mammals of Southern India has been worked out by various naturalists, and Jerdon's work embodies all the

information that was available when he wrote. A good deal now requires to be done in the revision of species and nomenclature, and many fresh facts have to be garnered and made available to the ordinary student and inquirer. As regards the birds of the peninsula, a thorough revision of Dr. Jerdon's nomenclature and species is perhaps even more necessary than in the case of the mammals. Mr. A. O. Hume, one of the many amateur naturalists who have done so much in India, has long been working at this section of the fauna, but the scene of his investigations has been more especially the northern parts of the country. The presence of a field naturalist is, therefore, much required, not only to revise and increase our knowledge of the birds which permanently inhabit or periodically visit the Southern Presidency, but more particularly to ascertain the geographical distribution of species, to investigate their habits, and to give the agriculturist practical information as to the individuals that are usefully protecting his crops from the ravages of insects. Search in our forest tracts and hill regions is sure to be amply rewarded, as there man has had less chance of interference than in cultivated districts. Many important biological questions, especially regarding the reproduction of mammals and birds, also await the patient investigation of a competent observer.

As regards the fishes of India, Dr. Day's great work probably embraces most of the species that exist in southern fresh waters, but novelties are sure to be found amongst the salt-water inhabitants, and a great deal has yet to be learned regarding their numbers, geographical distributions, habits and migration of fishes. Such an inquiry would form a fitting basis for an estimate of the value of our fishes as articles of food—more especially in times of scarcity—and as sources of products useful in the arts. The protection and culture of indigenous, and introduction of foreign, species are also important considerations, and questions that can only be satisfactorily settled on a scientific foundation. Much has also to be learned regarding the reptiles of Southern India, and there can be no doubt that systematic search will be rewarded by the discovery of a great number of species new to science, more especially amongst the batrachia. The mollusca on account of the beauty of their tenements, and the ease with which shells can be preserved, have always been favorite objects with amateur collectors, but the field of scientific inquiry is far from exhausted, and much valuable information has also to be elicited regarding the gastronomic value of shell-fish, and the artistic uses of the beautiful nacreous lining of many of their shells. With respect to insects, a splendid field awaits the naturalist, not only on the arid plains of the eastern portion of the country, but also on the moist western coast, and in the mountain regions and various forest tracts of the Presidency. The collections of specimens hitherto acquired in these localities have generally been small, and made mostly by unqualified observers, so that a rich harvest awaits scientific inquiry. On the hills and in the forests not only will varieties of insects common on the plains, but specialized to live under changed conditions, be found, but also species peculiar to these regions and others indicative of geographical relations that have long ceased to exist. In fact, these points and the general subject of the geographical distribution of insects in Southern India have yet to be worked out. As regards the habits of our insects, very little is known, and ignorance very often regards as hurtful individuals that protect our books, clothing, crops, &c., from the ravages of destructive kinds. Again, as regards the locust, which periodically devastates our fields, nothing certain is known as to whether it is a permanent resident multiplying rapidly under favorable conditions, or a visitor from some distant quarter where it has its perennial abode. In certain seasons also other insects destructive to coffee, sugar-cane or rice appear in amazing numbers, and we can rarely say why they increase to such an extent and show such a predilection for the fruits of man's industry. Nothing but a careful study of their habits will enable us to combat the visitations of these insect-pests; and, as an example of what may be done in this direction, it may be mentioned that the simple discovery in 1867 that the coffee-borer did not live under the shade of forest trees, saved that industry from ruin. The industrial value of certain insects is also of great importance, and it is desirable to know more regarding our silk-worms and bees, and whether an indigenous cochineal insect may not be profitably cultivated. These illustrations, which might be greatly multiplied, of our ignorance are given here to show the immense practical results that would ensue from a more extended

and accurate knowledge of the insect life of this part of India. As regards other sections of our *Arthropoda*, such as scorpions, spiders, myriopoda and crustacea, we know very little. One scorpion, the *Androctonus quinquestriatus*, *Ehrenberg*, found in the Kurnool District, has lately become notorious, as the Police report that numbers of persons perish annually from its sting. Other groups, lower in the animal kingdom, such as Vermes, Echinodermata, Coelenterata and Protozoa have received very little attention.

These remarks will, it is hoped, show how much has yet to be done in the mere collection and identification of species. Besides that there are many biological and other questions that would press themselves on the notice of naturalists investigating the natural history of the Madras Presidency. As examples of biological questions, the subjects of embryology, protective and warning colors, and the relations of animals to their surroundings may be mentioned. The geographical distribution of the fauna, and the indications afforded by certain species of remote geographical changes, will also be found futile and interesting fields of inquiry.

It is hoped that the necessity for a scientific survey of the mineral wealth and fauna of Southern India has been made obvious by these brief remarks; and in conclusion I would merely observe, that its execution appears to me an imperative duty—

- 1st.—As a tribute which we owe to science;
- 2nd.—As a means of educating the people whom we rule; and
- 3rd.—With the object of bringing to light articles which may become sources of wealth to the country.

To attain these aims we must further have a complete collection of specimens carefully identified and systematically arranged. To a country like India the economic aspect of the inquiry is perhaps the most pressing, but if the working out of this be left, as hitherto, to private enterprise, it will take the efforts of generations to secure the results that will immediately ensue from a careful scientific survey.

OOTACAMUND,
11th October 1882.

(Signed) G. BIDIE.

GOVERNMENT OF MADRAS,

Revenue Department,

Fort St. George.

1882

My dear Mr. Bidie

*With reference to your
D.O. to Secy of this date, I
have the pleasure to forward
to you — confidentially — a
copy of G.O. 28th Nov. 1882.
which contains the
papers you require.*

*The box of chinchona
specimens of Feb. 1882*

was despatched to the
address of the Director,
Royal Botanic Gardens, Kew
through the India office
by S.S. Siam which sailed
on or about the 27th October
last.

Yours sincerely
M. J.

GOVERNMENT CENTRAL MUSEUM

21, PANTHEON ROAD

Madras

5 Jan

1883

My dear Sir,
With reference
to my letter of 12 Sept 1882
No 836 your office memo
of 14 Oct. relative to a
parcel which I asked
you to send to Col. Beddome
to Director Royal
Gardens, Kew, I write to
ask you favour me with
date of despatch as
Beddome writes that it

Instruction
attendant.

has been reached New.
Possibly it may be ^{there}
by this time. I ^{please}

Also do not forget
that we have a copy
of the G. V. relation to
the Scientific Survey
of this Presidency. I
asked the sanction
of Mr. Freeman
to get a copy of Capt
Andrews' said I might
have one in this
condition that it
was treated as

Confidential, which
requirement will
be duly respected.

Yours truly

Secret.

spare
bought copies of
the Governor's minutes
and of the Sec. S. O.
which finally were lost.

5/1/83

QO 28.11-82 ref. 1330.11

- copy sent out 13-11-82
11.11.82

My dear Webster 11/11/82

I send herewith

a fresh draft order in

Diversity of Occupation.

which H.E. would like to

be fair copied in your

Office and ^{then} sent to

him again Yrs. if Allowed.

7. Katoji suggested Survey
of India.



Government House

Nature's location
only Madras -
Museum to be the
Centre

1. Botany will be provided
for by L - the re-organized
Forest Dept.

but much remains to be
done to develop resources

1. Minerals - Mining Bureau
now in Mysore
Demands in Bellary
District

Industrial. (Ladies
investigation.

Calcutta has not
time.

grate since.

3. Natural History

No answer to
the constant
hint of B. B. B.
to get copy 2
in G. O. W.

GOVERNMENT OF MADRAS.

Chief Secretary.

23/11

1882

Dear Webster,

Have you any
papers on this
subject, & are
you dealing with
them? I have
seen none

Yours sincerely
G. Webster

18/10

My dear Mr. Master

Herewith a letter
from Dr. Bidie and a
copy of the answer which
I have sent him by
H.S.'s orders

Yours sincerely

A. A. A. A.

23. Nov. 82 23/11

Museum

Madras,

10 Nov 1882.

My dear Capt. Andrieu,

As my
memorandum regarding
the Scientific Survey
of the natural history
of this Presidency
was written from
rough notes, do you
think I could get a
copy of it for my
own use when printed?
I should also like to see

to get a copy of the
minutes of his meeting
the Governor on the
same subject, if
necessary would
treat it as Confidential.

If I am asking what
cannot be given pray
excuse me. I believe
me

Yours truly
Didia

Govt. House
23^d Nov: 1882

My dear Dr. Bidder
In reply to your
letter of the 20th His Excy
desires me to say that
you will certainly have
your own Memorandum
and also presently there
will be a L.O. on the sub-
ject, and you will see
that your suggestions
have been complied
with -

There is no objection to
your having a copy of
His Excy's note but it
must be considered as
very confidential

Probably the GO
will give all you want.

Yours sincerely
Raf A. A. A.

1800

Old

7-1-1800

Amesbury

Dear Sir
I have the honor to receive
your letter of the 24th inst.
and in reply to inform you
that the same has been
forwarded to the proper
authorities for their
consideration.

I am, Sir, very
respectfully,
Your obedient servant,
J. H. [Signature]
Amesbury, N.H.
July 1st 1800

C. Nos 1970 }
 " 1797 }
 * " - 2289
 * " - 2401

Diversity of occupations
 and development of new
 Branches of Industries.

The Right Hon. The Governor's Memo.

Coty 16-10-82.
 Date 17-10-82.

By Private Secy to the
 Rt Hon the Governor.

20

Rec. Dept.

Memo

C. No 197 of 1882.
 " 1797 of 1882.
 O.M. dated 5th Jan'y 1882 No. 2.
 Memo. for Orders and
 Draft letter to Govt of India.

The undersigned has
 the honor to request that
 the papers noted in the
 margin, regarding the de-
 =sirability of encouraging a
 diversity of occupations and
 the development of new branches
 of industry in India, circu-
 =lated on the 27th July 1882,
 and kept back by His Ex-
 =cellency the Governor, may
 be returned if no longer
 required.

2.

Harvard College:

C. E. C. Hays

agriculture school

Industrial school - Black Town
Tayoc

Taryn

Mar 20, 1944

Harvard

Virginia 1911

1900

Q. Now, you're not going to say that the

transportation being important
place in the development of the
of the country - important of the
role

medicine, down to a certain point, and then
 work, for a short time, in a
 medicine, I suppose.

Mistake of knowledge in the teaching.
A partial description of the teaching.

establish control over foreign institutions
for best possible instruction in
different scientific disciplines.

Price Cape Verde

Wilson communications - case derived
way - mineralogists & mining engineers
from Appalachians.

decrease. The industry must be of products
which are part of the local market.

2. protection - communication with
in point - superior - interior

... improvement in ...
... agricultural population

Chetani Row ...

... education ...

Education ...

... education ...

... education ...

... education ...

... education ...

... education ...

Search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

... search ...

Sarkar of ... - then India must be
... as a dependent of England ...
... British colonies ...
... take up iron through a new industry ...
... competition ...

Public works ... for technical
education.

Village block ... right from a ...
steel - cement, ...

Chetani ... make ...

India : Scientific investigation of India a
most important - advance of science

* Geological survey - Museum - Forest Dept.
* Nature of ... & time not suited for
detailed investigation of mineral wealth
of districts -

more detailed survey of mineral wealth
wanted - collection of specimens to
be made - merchants acquire for scientific
information they require

Museum collection - a good - want
... man - a well qualified naturalist

Forest Dept. looks ... - might ...
... perhaps ...

Scientific survey ... of industrial
development

Mineral products Geological survey ...

Sufficient - ... India ...
Geologists cannot go into the details ...
have found way for ...

... natural history ...
... materials - ...

... these for ...

... of the ...
 ... of the ...
 ... of the ...

Domestic Kingdom - mammals & birds - distinctive records not as locusts:

Scientific survey of mineral wealth
 The Indian economy

1. With object of bringing to light objects which may become sources of wealth to the country
2. As a means of educating the people
3. as a historical basis.

Economic aspect of the enquiry is most important feature but if we wait out of this be left private enterprise it will take the spirit of a generation to build the basis that would immediately result from a careful scientific survey.

DEPARTMENT.

No.

From Madras 8.28th Feb, 1881 no 371 - abstract

- (1797) { Pte. 2. Boards of Revenue - 18th March 1882
- (2289) { Letter from the ch. Engineer 30th April 1881
- (2401) { Letter from the District Collector 1st May 1882

Note by Sangam Major India. Supd. of ...
 Central M.

Minute by H.E. The Governor

Draft FOR ORDER

The important subject to be considered in the extract from the report of the Indian Farmers Commission forwarded with letter no. 6-159 from the ...
 no. 6-159 dated the 8th Feb, 1881 - Home Department
 The Govt. of India dated the 8th Feb, 1881
 It has received the ...
 of the ...
 The various ...
 whose proceedings ...
 above have been duly considered.

2. In the proceedings of the Board of Revenue ...
 will be forwarded for the information of the Govt. of India, the ...

of several of the most able & experienced
Revenue officers serving in various
of the heads of different departments
to of ~~certain~~ our own gentlemen
British European whose opinions
it was thought, would carry weight

3. It might be objected
from the nature of the subject it has
been handled in a widely different
manner in different quarters.
The general tone of the opinion
measured however is that practical
the measures suggested by the Commission
are not likely to have much effect in
enabling the people to which ammu-
nition is exported to take the
the statement that the population
engaged in agriculture is in excess
of the requirements, is correct
while so much cultivable land remains
uncultivated in the immediate vicinity
of most fertile agricultural countries.
It is urged with much force by
native officials of great experience
that the main force for the disposal
of applications for land is the practice

* which cannot be accused of
 overlooking the fact that the improvement
 of what is termed the ^{domestic} ~~primary~~ occupation
 of the people ~~is one of the~~
 chief ends ~~of the~~ educational system. The
 success of the School admitted
 the Govt. of India & the Secretary of State
 & the total sanitation organization
 & the agricultural aspect. on some
 other important points.

* To read the book

of granting ^{such} remissions in bad seasons
unduly ~~prone~~ ^{to} pauper applicants
to their own detriment & that of the
general agricultural interest. This
matter will receive now as it
has before the attention of His
Govt. *

4. It is urged by many of the officers consulted that ~~that~~ the principal method by which ~~the~~ can indirectly ~~encourage~~ ^{encourage} a diversification of trades & occupations is the extension of the means of communication whereby the material resources of the Empire are brought within reach of the operations of trade but it must be remembered that the object in view here is to increase the number of trades & occupations but to consider the means of transport by which the products thereof may be brought within reach of the ~~operations of trade~~ ^{operations of their respective} markets. The Right Hon: the Governor in Council while agreeing with the Finance Commission that the whole available means of the state will yet be required for many years for railway extension & the extension of postal works, further concurs with them in

...ing that there are many...
in which Govt. was usually aid for
fostering the inception of new industries.

5. That the Madras Govt. have long held the latter view
have acted upon it as far as the
resources of their command allowed
is sufficiently evidenced by the existence
of the Cochin China Plantations, the Government
Agricultural School, the several Industrial
Schools supported wholly or in part
by state funds, the manufacturing
departments in the Central Bank, the
School of Arts, the Medical College,
the Ordnance Engineering School, the
Civil Engineering College, the Government
Central Museum for the instruction
of an educational or industrial
character which the youth-in some
cases of the sexes - are trained to
follow particular professional paths
to become ~~the~~ ^{skilled} artisans
as skilled artisans

6. The Hon. the Govt. Council have considered the
of the country in the development of the country in
that much of the country is still in a
that efforts should be made to
from systematic development of the
country. Now that the Tea Cultivation
in China and India have been
not in the land it is not admissible
in the creation of new industries

FOR ORDERS.

[Handwritten signature and stamp]
Secretary
Government of India

DEPARTMENT.

No.

From

to
The Hon. the Govt. Council
of the Government of India
in matters within the sphere of the
economic & commercial influences of
knowledge as to the natural resources
of the Province. ~~The Govt. Council~~
to direct ~~the~~ ^{any} ~~of~~ ^{from} foreign capital ~~to~~
from foreign money in India but it may safely be
intended that it has decided to
consequence of the report of the
investigation, money would not long
be wanting for the inception of
such industries as promise a fair
profit in the opinion of competent
authorities.

FOR ORDERS.

7. An instance of the
want of a scientific
of the mineral wealth of the
of the Southern India has lately
been supplied by the course given
in S. E. Wynad. The Geological
Survey of India has been over the
ground but the nature of the
enquiries the time allowed for
their prosecution is not suited
for the detailed investigation of
mineral districts nor is

Such detailed investigation one
of the proposed objects of such a
Survey. There can be no doubt
that much of the capital invested
in the gold mines of the bygone
time inevitably be lost & that
that loss might in a great
measure have been averted had
a detailed mineralogical survey
of the locality been made & specimens
of quartz been available ^{from} which
mineral ~~specimens~~ ^{minerals} might have
~~been~~ ^{been} obtained. The
position may information they
require. A scientific survey
is the necessary precursor
of industrial development.
The geological survey has
paved the way for subsequent
local investigations close attention
might with great advantage the
state & the public be directed
to the particular products of
particular districts ^{such as} gold, iron,
copper & diamonds ^{at} ~~in~~ the
localities where these ^{substances} ~~are~~ ^{exist}
~~are~~ ^{are} ~~of~~ ^{of} ~~the~~ ^{the} ~~country~~ ^{country}

27
stones were found, old, in India
granite, gneiss, limestone &
marble & many other decorative
& constructive materials of value
lie unworked over the face of the
country awaiting the attention
of the skilled mineralogist who
shall supply possible materials
with the requisite knowledge as to
locality & extent of deposit. Now
if this all of iron & copper are
known & coal is believed to exist
in the Presidency & information
is needed as to the occurrence
valuable minerals used for
personal ornaments for the production
of some of which India has long
been famous. A better knowledge
of the substances employed in the
making of cement & in the manufacture
of pottery & glass would be of
great industrial value at the
present day. Minerals would
doubtless be discovered ⁱⁿ whose
chemical composition ^{substances} ~~and~~ ^{of}
~~value exist~~ ^{value exist} ~~in~~ ⁱⁿ ~~the~~ ^{the} ~~country~~ ^{country}

The forest which divides the hills separating this Presidency from the Central Province, probably contains birds unknown to Gordon & mammals undescribed by Mr. Bruce.

FOR ORDERS.

New industries using up the
born from hitherto neglected jungle products.

No.

DEPARTMENT

10. With reference to para 7 & 8
of the extract from the report of
the Finance Commission forwarded
with the letter from the Govt. of India
under ^{reference} ~~ref.~~, the ^{signal} success ^{achievement} ~~is~~
of Mr. Christman at the Solan and
Gardes the other officers at District
Jails notwithstanding the ^{little} ~~fact~~
in C. is of opinion that a man of the
type of Mr. Hindwood or Mr.

FOR ORDERS.

Purdie Clarke would do more
in this President
break up art & industry in
two or three years, than a
possibly be accomplished by
members of the Executive
Ordinary Executive
as they are with the multifarious
duties immediately connected
with their respective offices.

11. His Excellency the
Governor is of opinion that the
forgoing observations sufficiently
prove that a scientific survey
of India is necessary.

Firstly, with the object of
bringing to light articles which
may become sources of wealth
to the country

Secondly, as a means
of educating the people

Thirdly, as a tribute
~~to science~~ to science
in view of the collection of
^{scientific} specimens of value not only
to India but to all countries
where science is cultivated.

12. ~~In view of this~~
~~as a consequence its recommendation~~
with this it would therefore
be proper that the Government
should take the opportunity
of an early ~~providing~~ ^{providing} the
providing officers to be paid
from Provincial funds

a Govt. Geologist & Mineralogist
a Govt. Naturalist
a Govt. of Reports on
arts & manufactures

Belgium, Agriculture having
already, ~~but~~ of late, been

provided for.

12. If this suggestion
commends itself to the Govt. of
India the pay allowances
of these officers could be ~~very~~
~~decided~~ arranged. It will
suffice here to remark that the
scale should be fixed on the liberal
scale required to bring from
Europe young men of knowledge
& energy capable of ^{communicating} the
knowledge ^{the progress such a} in a clear & acceptable
form ~~as a means of~~ ^{advantage}
make it ~~easy~~ as will allow
of its being readily assimilated
thence ^{practical} ~~to be~~ by the public
thence ~~as a means of~~ ^{practical} to
practical advantage at first
hand. ~~The Govt.~~ The Govt. would
propose that these officers
should travel throughout
the Presidency at least every
two months to get part of

on a scientific as chiefly
on the economic aspect of
their subjects. Their reports
were usually published
soon after they were received.
They passed into general
circulation. A body of
~~information~~ materials, in a
handy & collected which it
is thought has been able to
facilitate present money values.
In the evidence, while great
consideration has been so far
the main object of collection
works to have been secured
principles to further the
economic progress of the
country. No time could be
better suited than the present
to launch such a scheme while
home manufacturers are
demanding raw material
or half prepared products
& the interest in Indian
manufactures is unusually

* The Zool Central Museum which
has already under its present
management been done as much as is possible
under existing ~~circumstances~~ ^{and work} circumstances
would be ^{the} center at which reports would
be deposited. FOR ORDERS. ^{specimens}
collected, lectures delivered, ~~based~~
on the ~~present~~ ^{present} ~~following~~ ^{following} ~~lines~~
~~to wit~~. In this manner scientific
education would be centralized
the Zool. Dept. from the improvement of which
it is our present more or less object
of promoting technical education is
being promoted such by scientific
teaching. This however is not nearly
the main end Zool. promotes
happening with the scheme
sketched in the foregoing.
The body of information collected in
the manner indicated would be of
the greatest possible *

From

No.

DEPARTMENT.

15. The proposed amendments of sanctioned works be made for a period not exceeding three years terminable by three months notice in view of the pressing demands for increased outlay in various departments & the late discovery of an error in the accounts wherein the percentage of Provincial Revenue ^{was calculated} assigned ^{to be} ~~FOR ORDERS.~~

And this has been to the Provincial Revenue Officer, ^{General Secretary,} ~~the Secy. to Govt.~~ ^{11/12/1917}

And this is done in accordance with the scheme should be regarded as one of those permanent needs of the Presidency, to which the 5th para of Mr. Logan's letter of the 21st July last refers that the means of meeting the consequent charges may be provided by a modification.

4917. D. in ¹⁴ Aug 1882

of the percentage, ~~the~~
~~Local Revenue assigned~~
~~to Provincial~~

(K. H. H.)

It was expressly stated
in para 12 of the letter
of this date of the 9th Jan.
last no 36 that the list
of further requirements given
therein was not exhaustive.
It contained such items
of expenditure only as were
then provisionally before
this Govt. — & it is
the opinion of the Council is of
opinion that the scheme
sketched in the 22

proceedings is inferior
in importance to none
of those mentioned &
may inaugurate may
give a new point of
departure pregnant
with most important
results.

107

24/6/02

Divinity of Occult

1. Copy Miss B. S.
2. Print M. B. S.

Note. 1/2

25/10/02.

FOR ORDERS.

Printed by

Note

Printed by

Note

Printed by

Note

25/10/02

Revenue Department

Read

Extract from the Report of
the Indian Famine Commission
forwarded with letter from
Government of India to: $\frac{6}{154}$ (Home,
Revenue & Agricultural Department),
dated 8th February 1881 and

Note by Surgeon Major Bidie,
Superintendent Government
Central Museum, dated

Order

The important subject
discussed in the extract from the
Report of the Indian Famine Commission

forwarded with the letter from the Government of India noted in the

#No. 6-157, dated
8th February 1881
Home, Revenue
and Agricultural
Department.

#margin has received the
careful consideration
of the Right Honourable

the Governor in Council and

he now proposes to put on record the
conclusion at which he has arrived.

2. His Secy in Council entirely agrees with
the Finance Comm^{rs} that it is desirable to foster
the introduction or development of a diversity
of occupations in this part of India and is
no less persuaded that they are right in
saying that the desired result can only follow
upon an increased disposition to apply capital to
industrial pursuits in this Presidency which again
will be a consequence of a growing conviction

that adequate profits may be secured on
investments under a condition of continued
peace and good government."

3. There seems no doubt that
Capital is slowly flowing into Southern India.
The increased cultivation of Chickona, the
old enterprise in the Wynad, and other similar
facts are at hand to show it.

4. The Famine Commⁿ has however
put ~~the~~^{its} finger upon the real obstacle that
stands in the way of the investment of
English Capital in these regions when it
calls attention to the want of exact knowledge
of the Country. True it is that much is
known about it but there are vast gaps
in our knowledge and no sensible Capitalist
will risk his fortune upon a series of
guesses.

5. In the ~~note~~ by Surgeon Major Bidie,
read at the Commencement of these Proceedings,
will be found a number of instances of imperfect
knowledge both Scientific and Economic to
which it would be perfect/ easy to make large
additions.

6. It may for instance be asserted
with the utmost Confidence that there is no
single District under the govt of India in
which a trained expert such as Sir George Birdwood
or Mr. Purdon Clarke who visited India
last winter would not after a study
of a few weeks be able to bring to the
notice of even the ablest district officers
a variety of products manufactured
or unmanufactured and possessing
a marketable value, with which
these Gentlemen were unacquainted

36

While no information is possessed by any one at the Centre of affairs which can supplement the ignorance prevailing amongst the local depositories of power.

7. We have no doubt in the Madras Museum the commencement of an admirable index of the products of this Presidency but it is an index very far indeed from being complete while what is really wanted is a place to which the agent of any Capitalist can go and see at a glance how far the Madras Presidency can assist him in the fulfilment of his objects.

8. His Hon^r in Council is far indeed from doubting that the greater part of the available means of the State

will be required for many years for the
 Extension of Irrigation and of Railways with
 it without in either case the cooperation of
 private enterprise nor has he anything
 to say against the wisdom of Govt in certain
 rare and exceptional cases directly
 engaging in industrial pursuits provided
 always it gets out of them as soon as it
 conveniently can, having regard to all relevant
 circumstances, after the industry in which
 it has been a pioneer has been successfully
 established. It is however to the kind
 of work indicated in paras 10. 11 and 12 of
 the Extract forwarded by the Govt of India
 that His Secy. in Council is disposed
 to attach for the present most
 importance. He is rejoiced to see the
 steps lately taken by the Govt of India

to give certain preference to
India articles and the world with the
Famine Comm^{rs} be prepared to assist
new local industries by obtaining needed
information from other countries or skilled
workmen and supervision. It is quite
possible, for instance, that it might
be right to do something of this kind
in the iron industry hereafter in Salem
and Bellary. But the ~~true~~^{main} work of
a government is to do what can
be done by no other agency and
for ^{one of these things} ~~that purpose~~ in a country like
India is ^{the} collecting strong and
making available full and correct
information.

9. Within the last few months
the Forest Department in this Presidency
has been by the permission of the Govt.

of India put on a new and more scientific basis. A European Botanist of considerable reputation is being sent out by the Sec^y of State and an Agricultural Dep^t has been called into existence.

10. It may then be assumed that the collection of important facts in relation to our large departments of human knowledge will go on more satisfactorily than it has hitherto done and the only thing wanted in this connection is to ^{connect} ~~connect~~ the Madras Museum more closely with the Portals of Forestry and Agriculture of the Presidency. ^{This} ~~that~~ need cost ~~the~~ little but it should be carried

600

into effect- While that Institution is under
its present excellent head. Much however
remains to be done. In the first place
we want to know and do not
know all the Manufactured Articles
Which the Presidency produces, where
they are produced, at what cost
and which of them are likely to be
saleable in Europe. It is confidently
believed that a considerable trade would
spring up between not London only but
various other Capitals if it were easy
to procure all the articles which are even
now ~~produced~~ ^{manufactured} in this Presidency. Our first
want would seem then to be a
careful examination of the whole Country
by such an expert as the gentleman

41
who was last year sent out
from South Kensington by the
Lord President of the Council.

11. Again the Geological Survey
of India has done admirable
work in Madras as elsewhere; but
its labours, if they are to be useful
to the capitalist, should be suppl-
-mented by those of the Mineralogist
whose attention would be directed
not to the broad outlines of the
landscape and their underlying
causes but to the particular pro-
-ducts of particular districts.
It is believed that many decora-
-tive and constructive materials
of value lie unworked and
unknown awaiting the attention

of the expert who shall supply
possible investors with a
-quisite knowledge as to the
quality, locality and extent
of the deposit.

83
12. Our second want seems then to be
a thorough examination of the Presidency by
a Competent Mineralogist. ~~It will be~~

13. It will be observed that a Consider-
=able portion of Dr. Bidin's paper, read
above, ~~alludes~~^{refers} to Natural History and
there can be no doubt that an examination
of the Presidency by several competent persons
with reference to the economic aspects of
the various sciences which are popularly
included under that head would be of great
value we hesitate however to make any
definite proposal with reference to this
subject until the results ^{of the suggestions} ~~from the proposals~~
which we are about to make, ~~are seen~~
^{become visible.}

14. The definite ^{proposal.} ~~suggestion~~ according
which we make is the temporary
appointment at an early date

664
of a Government Reporter on facts and main-
-factures and a Government Mineralogist
for the Madras Presidency.

14 If this proposal commends
itself to the Government of India,
the pay and allowances of these
officers could be subsequently arranged.
It will suffice here to remark that
both should be fixed on the liberal
Scale required to bring from Europe
for a short term of years men of
high acquirement and energy
capable of communicating the
knowledge they possess in such a
clear and acceptable form as
will allow of its being readily
assimilated by the public and
turned to practical advantage. The

68
Government would propose
that these officers should travel
throughout the Presidency and
report to them every two months,
chiefly of course, on the economic
aspect of their subjects. Their reports
would be usually published soon
after they were revised and would
pass into general circulation.
The Government Central Museum
would be a centre at which reports
would be digested and specimens
collected. Although science would
thus be promoted this is not the
main end Government propose
to accomplish by the scheme sketched
in these proceedings. The chief
end in view is the collection in
the manner indicated of a

body of information which would be of money value to the Presidency and to the Executive. No time could be better suited than the present to launch such a scheme while home manufacturers are demanding new, raw or half prepared products and the interest in Indian manufactures is unusually great. If the necessary inquiries be left to private enterprise it is believed by His Excellency in Council that it will take the efforts of several generations to secure the results that would immediately ensue from a careful, scientific and industrial survey.

[illegible]

the commencement of which we
now propose.

Notes on the proposed Survey
of the Natural History of Southern
India.

General Remarks. The importance of a thorough
Scientific investigation of the natural
history of Southern India cannot
hardly be overestimated. Individual
workers in the past have no
doubt done a great deal more
perhaps than in any foreign
part of His Empire, but
science has made such advances
since these distinguished men
conducted their practical
investigations, that the work
accomplished by them needs
to a certain extent, verification
& revision. As a rule they
could only devote a portion
of their time to their self-imposed
tasks, & owing to this & the vast
& varied nature of the country
to be explored, the investigations
of these provinces were necessarily
of a limited character.

Of late years the special
agencies at work on the nat-
ural history of Southern India
have been the Geological
Survey, the Museum & to a certain

Intend the Forest Department.
As regards the Geological Survey
it has, from an imperial
point of view, done admirable
work, but it has not had,
the time nor has the nature
of its inquiries tended
directly to the disclosure in
detail of the mineral wealth
of districts & provinces. What
it has accomplished in
systematic geology has been
embodied in that splendid
work the "Manual of the
Geology of India" to which
a third volume has been
added treating of the economic
portion of the subject, so far
as known. What is now
wanted, as regards our mineral
wealth, is a more detailed
Survey of the Country, &
the Collection & arrangement
in the local Museum of
specimens, so as to enable
the student to acquaint
himself with the leading
facts regarding the geological

formations & mineralogy of
Southern India, & to afford
the miner, merchant & the
preliminary information
they require. It is far then
our duty as a civilized Govern-
ment, to make patent the mineral
treasures of the Country to the
scientific world. Some things
has already been done towards
these ends by the Museum, but
the specimens hitherto collected
by the Geological Survey have
been transferred to a general
collection in Calcutta. This
no doubt has been necessary
in carrying out an imperial
Survey, as many things could
only be properly worked out by
Experts at head-quarters, but
local wants now require attention.

As regards the Museum one
of its objects has been to illustrate
the natural history of Madras
by the collection, preservation,
housing & scientific arrange-
ment of specimens. It was

also endeavoured to increase
the instructive value of these
by the acquisition of objects
from other parts of the world,
& to make South Indian speci-
mens common scientific property
by carrying out exchanges.
It has steadily laboured to
increase its local collections
by employing collectors, but
these men, from the limited
resources at Command,
have had no knowledge beyond
that necessary to enable
them to preserve specimens
coming in their way, nor
could they, as a rule, distin-
guish novelties from objects
already in the Museum,
so that in this way much
labour, time & material
have been needlessly expended
in accumulating duplicates.
As regards the superior staff it
has been, & must be, constantly
occupied at head-quarters in
working the institution,
although the Superintendent has
generally endeavoured to spend
one or two months annually
in making collections at a
distance from Madras.

As the operations of the Museum
are not confined to natural history
& as each branch of its ^{work} requires
special attention, efforts have
been made to train the assistants
so that each might, as far as
possible, undertake the care of
one or two departments. This
arrangement has been so far
successful, but the need is
constantly felt of having some
one in the field capable of
appreciating & meeting the
wants which are discovered
as work proceeds, & of relieving
the Museum staff of much of
the heavy labour & responsibility
of identifying specimens.
The plan has hitherto been
for an Assistant to go over
the ground in advance, &
for the Superintendent to take
up the various sections thereafter
in rotation, the more urgent
receiving attention first. It
need hardly be said, that
progress has been slow
owing to the magnitude of
the task, & the impossibility

of one or two officials making
themselves thoroughly acquainted
with the numerous subjects
which claim their attention in
such a large institution. With
well qualified naturalists
working in the field, & in the
Museum during recess, the
staff would be relieved of
much of the preliminary
work with which they have now
to grapple, & have more
leisure to attend to the
arranging & Cataloguing
of the collections, so as
to realise their scientific
value & increase their
educational & economic
importance.

The Forest Department
has also done valuable
work in identifying timber
trees, & the elaborate forest
floras compiled by members
of the staff, are of much
practical & scientific
value. It has also placed

Here to name
it in Madras
this want will be
supplied by Mr. Compton
+ so the section will
be complete

51
to various museums, admirable
collections of authenticated
specimens of indigenous woods.
The distance of such botanical
knowledge in the Forest Depart-
ment must, however, be regarded
as exceptional. A great
deal yet remains to be done
towards the identification &
utilisation of little known
jungle-products, & there can
be no doubt that some of
these are destined, in course
of time, to create new indus-
tries. But here as in the other
sections - animal & mineral -
a scientific survey, embracing
the collection & distribution of
specimens, must be the precur-
sor of industrial development.
Amid the ever increasing
wants of civilisation & the
refinements of Chemistry &
mechanical art, it is hard to
say what articles may not
be utilised & made sources

of wealth to the country. It
is most important therefore
that we should take stock
of our natural wealth, including
things that may at present
appear trivial & useless.
Mineral products.

Although the
Manual of the Geology of India
has given us general informa-
tion, much more is still needed
in detail. In short mineralogy
is a science in itself, & in its
present development, requires
undivided attention and
special training. The facts
brought to light by the inves-
tigations of mining engineers
& others, in the gold and
diamond fields of Southern
India, may serve as an
illustration of what remains
to be done. Even in parts that
may have come under the
observation of the Geological Survey.

May be used
almost in its
entirety

As already stated, the Geological
Survey cannot spare the time necessary
for detailed inquiry, but must
be content with illustrating
the broad facts of the syste-
matic geology of the country,
a task which has been done
in a manner that has com-
manded the admiration of fellow-
workers in every part of the
world. The work thus accom-
plished, has paved the way
for minute inquiry into the
mineralogical wealth of
Southern India, and such
an investigation may now be
conducted with facility and
celerity. We know of the
existence of gold, iron, copper
&c, but we need further precise
information as to the nature
of the ores, the localities in
which they exist & the extent
of the deposits. The detailed
natural history of our construc-
tive & decorative materials,
such as granite, gneissic rocks,

quartzites, limestones, laterite
marbles, &c. &c. like is also
required. Equally is information
needed regarding the uses &
more valuable minerals
used for personal decoration
& ornament, & for the production
of some of which India has
long been famous. A better
knowledge of the substances
employed in the making of
Cement, & for the manufacture
of pottery & glass would
also be of great industrial
value to India at the present
day. Of late years various
minerals have become of
great importance owing to
their chemical composition,
& it can hardly be supposed
that a systematic survey
would fail to detect the
existence of some of these
in so vast a field as Southern
India, or to discover others
valuable for

Chemical manufactures.
These remarks contemplate
chiefly the economic impor-
tance of such an enquiry,
but it is equally necessary
from a scientific point
of view, as our knowledge of
the mineralogy of the Madras
Presidency is still vague
& imperfect, & a scientific
collection of local specimens
urgently required. Such a
survey & collection would
not only be of immense
value to India, but to every
quarter of the world where
science is cultivated.
Animal Kingdom.

The natural history
of the mammals of Southern India
has been worked out by various
naturalists, & Jerdon's work embodies
all the information that was available
when he wrote. A good deal now
requires to be done in the revision
of species & nomenclature, &
many fresh facts have to be
gathered & made available to
the ordinary student & Engineer.

As regards the birds of the peninsula a thorough revision of Dr. Jodanis nomenclature and species is perhaps even more necessary, than in the case of the mammals. Mr. A. O. Hume, one of the many amateur naturalists who have done so much in India, has long been working at this section of the fauna, but the scene of his investigations has been more especially the northern parts of the country. The presence of a field naturalist is therefore much required not only to revise & increase our knowledge of the birds which permanently inhabit or periodically visit the Southern Presidency, but more particularly to ascertain the geographical distribution of species, to investigate their habits, & to give the agriculturist practical information as to the individuals that are usefully protecting his crops from the ravages of insects. Search in our forest tracts & hill regions is sure to be amply rewarded, as the man has had less chance of interference than in cultivated districts.

Many important biological questions, especially regarding the reproduction of mammals & birds, ^{also} await the patient investigation of a competent observer. As regards the fishes of India Dr. Day's great work probably embraces most of the species that exist in Southern fresh waters, but novelties are sure to be found amongst the salt water inhabitants. A great deal has yet to be learned regarding their numbers, geographical distribution, habits & migration of fishes. Such an enquiry would form a fitting basis for an estimate of the value of our fishes as articles of food - more especially in times of scarcity - & as sources of products useful in the arts. The protection & culture of indigenous, & introduction of foreign species are also important considerations, & questions that can only be satisfactorily settled on a scientific foundation.

Truck has also been learned regarding
the Reptiles of Southern India &
there can be no doubt that syste-
matic search will be rewarded
by ^{the discovery of} a great number of species
new to science, more especially
amongst the batrachia. The
mollusca on account of the beauty
of their tenements, & the ease
with which shells can be preserved
have always been favourite
objects with amateur collectors,
but the field of scientific inquiry
is far from exhausted. & much
valuable information has also
to be elicited regarding the
gastronomic value of shell-fish,
& the artistic uses of the beautiful
nacreous lining of many
of their shells. With respect to
insects a splendid field awaits
the naturalist, not only on the
arid plains of the eastern
portion of the country, but
also on the moist ~~coastal~~
western coast, & in the mountain
regions & various forest
tracts of the Presidency.

45
The collections of specimens
hitherto acquired in these
localities have generally
been small, & made mostly
by unqualified observers,
so that a rich harvest awaits
scientific inquiry. On the
hills & in the forests not
only will varieties of insects
common on the plains, but
specialized to live under
changed conditions, be found,
but also species peculiar
to these regions, & others indica-
tive of geographical relations
that have long claimed to exist.
In fact these points, & the general
subject of the geographical distri-
bution of insects in Southern
India have yet to be
worked out. As regards the
habits of our insects very little
is known, & ignorance very
often regards as heartful
individuals that protect our
woods, clothing, crops &c from
the ravages of destructive kinds.

Again as regards the Locust
which periodically devastates
our fields, nothing certain
is known as to whether it is a
permanent resident multiplying
rapidly under favourable
conditions, or a visitor from
some distant quarter where
it has its perennial abode.
In certain seasons also other
insects destructive to Coffee,
sugar-cane or rice appear
in amazing numbers, & we
can rarely say why they
increase to such an extent &
show such a predilection
for the fruits of man's
industry. Nothing but a
careful study of their habits
will enable us to combat
the visitations of these insect
pests; & as an example
of what may be done in
this direction it may be
mentioned, that the simple

holding coffee
loss in a 100
years under
locusts killing

discovery in 1867, that the
Coffee-Borer did not live
under the shade of forest
trees, saved that industry
from ruin. The industrial
value of certain insects is
also of great importance,
& it is desirable to know
more regarding our silk
worms, & bees, & whether
an indigenous cochineal
insect may not be profitably
cultivated. These illustrations
which might be greatly
multiplied, of our ignorance
are given here to show the
immense practical results
that would ensue from a
more extended & accurate
knowledge of the insect
life of this part of India.
As regards other sections
of our Arthropoda, such
as Scorpions, Spiders,
Myriopoda & Crustacea,
we know very little.

One Scorpion, the *Androctonus*
quinquestratus Chenbura, found
in the Tumour district, has lately
become notorious, as the Police
reports that numbers of persons
perish annually from its
sting. Other groups, lower in the
animal kingdom, such as *Termes*,
Echinodermata, *Celenterata* and
Protozoa have received very little
attention.

These remarks will, it is
hoped, show how much has yet
to be done, in the mere collection
& identification of species.
Besides that there are many
biological & other questions
that would press themselves on
the notice of a naturalist
investigating the natural
history of the Madras Presi-
dency. As examples of
biological questions the
subjects of *embryology*, *protection*
& *warning colours*, & the
relations of animals to their
surroundings may be mentioned.
The geographical distribution
of the fauna & the indications

57 12
afforded by certain species
of remote geographical changes,
will also be found fertile &
interesting fields of inquiry.

It is hoped that the necessity
for a scientific survey of
the mineral wealth & fauna
of Southern India has been
made obvious by these
brief remarks; & in conclu-
sion I would merely observe,
that its execution appears
to me an imperative duty,
1st as a tribute which we
owe to science,
2^d as a means of educating
the people whom we rule,
and
3^d with the object of bringing
to light articles which may
become sources of wealth
to the Country.

To attain these aims we must
further have a complete collection
of specimens, carefully identified
& systematically arranged. So
a country like India the economic
aspect of the inquiry is perhaps

the most pressing, but if we
working out of this we left
has hitherto, to private enterprise,
it will take the efforts of
generations to secure the
results that will immediately
issue from a careful scientific
survey.

Ocala, Cameron
11 Feb 1882. Edwin

made a great amount of
work in the south of the
peninsula, and
collected a great deal of
material, and
found some new
plants and
insects, and
also some
fossils, and
also some
minerals, and
also some
other things.

9
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

Please order this to be
bound in a cloth cover
-

35/10

Would it not be possible
to avoid sending to India
the proceedings of the B. B.
of 12 men or my note
modifying the fact
that of the accordingly
with very strong free
kindness to Ripa
Boring many of the women
set forth in the
President's name, or could
the same be taken away
all contravention
keeping to facts?

Draft G. O.

Read again

40, 28th February 1881
No 371 (abstract)

Read also

~~Proceedings of the Board
of Revenue, dated 18th March
1882, No 820.~~

C. № 1797.

C. 167 2289.

C. No. 2401

2. Letter from the Chief Engineer, dated 30th April 1881, No 28.

3. Letter from the Director
of Public Instruction, dated
1st May 1882, N^o 2516.

4. Note by Surgeon Major
Bidie, Superintendent,
Government Central
Prison, dated

5. *Witness by the Excellency
the Governor*

order... The important subject
discussed in the extract
from the report of the India
Famine Commission follows

with

with the letter from the Government of India noted in the margin, No. 6-157, dated the 8th February 1881. Home, Revenue and Agricultural Departments.

Honorable the Governor in Council and the opinions which were invited from the various authorities and officers whose proceedings and letters are read above have been duly considered.

2. In the Proceedings of the Board of Revenue, copy of which is forwarded for the information of the Government of India, will be found the views of several of the most able and experienced Revenue Officers serving in the Presidency, of the Heads of different Departments, and of other gentlemen, Native and European, whom the Government have consulted.

3. As might be expected from the nature of the subject it has been handled in a manner in different widely different quarters. The general tenor of the opinions received, however, is that practically the remedies suggested by the Commission are not likely to have much effect in enabling the people to resist famine and a doubt is expressed as to whether the statement that the population engaged in agriculture is in excess of the requirements, is correct while so much cultivated land remains uncultivated in the immediate vicinity of petty agricultural centres. It is urged with much force

by a Native official of great
experience that the existing
rules ~~in force~~ for the disposal
of applications for land
and the practice of granting
dispensations in bad
seasons unduly favor
pauper applicants to
their own detriment and
that of the general agricul-
tural interest. This matter
will receive now as it has
before, the attention of
this Government which
has never overlooked the
fact that the improvement
of what is, and must
continue to be, the principal
occupation of the people
is one of the chief ends ~~to~~ to be kept
before it.

4. It is urged by many
of the officers consulted that
the principal method by

which Government can
indirectly foster and encourage
a diversity of trades and
occupations is the extension
of the means of communi-
cation but it must be
remembered that the object
in view here is to increase
the number of trades and
occupations and not to
consider the means of
transport by which the products
thereof may be brought to
their respective markets.
The Right Honorable the
Governor in Council while
agreeing with the Finance
Commission that the whole
available means of the state
will yet be required for many
years for railway extension
and the extension of Irrigation
Works, further concurs with
them

most of the

them in holding that there
are nevertheless directions
in which Government
may usefully aid in fostering
the beginnings of new
industries.

5. That the Madras
Government have long
held the latter view and
have acted upon it as far
as the resources at their
command allowed is
sufficiently evidenced
by the existence of the
Government Cinchona
Plantations, the Tridaphni
Agricultural School, the
several industrial schools
supported wholly or in part
by state funds, the school
of Arts, the Medical College,
the Ordnance Artificers
School, the Civil Engineering
College, the Government
Central

Central Museum and other
institutions of an Educational
or Industrial character in
which the youth in some
cases of both sexes are
trained to follow particular
professional pursuits or to
earn a livelihood as skilled
artisans.

6. The Right Honorable
the Governor in Council
considers nevertheless that
the Government has never
applied itself to the develop-
ment of the country in a
sufficiently systematic
way and that much yet
remains to be done. It
may be very desirable that
a Government initiated
like this one should occa-
sionally lead the way
in a totally new industry
by itself engaging in it.

Cinchona

Chinchona is a case in point; but such cases are rare and we should rather aim at the systematic diffusion both in the country itself and in others within the sphere of its economic and commercial influence of knowledge as to the material resources of the Presidency. Ignorance and distrust at present deter foreign capitalists from freely investing their money in India, but it may safely be inferred that if these obstacles were removed and confidence proportionately increased by the reports of experts of reputation, money would not long be wanting for ^{the} ~~the~~ ^{new} ~~inception~~ of such industries as promised a fair profit in

Government?

establishment?

in the opinion of competent authorities.

1. The Geological Survey of India has done admirable work in Madras as elsewhere but its labours, if they are to be useful to the capitalists, should be supplemented by those of the Mineralogist whose attention would be directed not to the broad outlines of the landscape and then underlying causes but to the particular products of particular districts. Granite, gneiss, limestone, marble, gold, diamonds and many other decorative and constructive materials of valuable unworked ^{or little} ~~over~~ the face of the country awaiting the attention of the attested Mineralogist who shall supply

export

supply possible investors
with the requisite knowledge
as to the quality, locality,
and extent of deposit.

7. Nor is this all: iron and
copper are known, and coal
is believed to exist in the
Presidency and information
is needed as to the parganas
and more valuable minerals
used for personal ornaments
for the production of some
of which India has long
been famous. A better
knowledge of the substances
employed in the making
of cement and in the
manufacture of pottery
and glass would be of
great industrial value
at the present day.
Minerals too might
(doubtless) be discovered

in whose chemical composition
substances of manufacturing
value exist.

8. The Forest Depart-
ment of this Presidency
has done in past times
valuable work in identifying
timber trees and publishing
forest flora. The existence
however, in this Department
of such botanical knowledge
as was supplied by Colonel
Beddome is exceptional
~~and the Government has~~
~~caused to be published~~

9. With reference to
paragraphs 7 and 8 of the
extract from the report of
the Famine Commission
forwarded with the letter
from the Government of
India under reference, the
Right Honorable the
Governor

omit

Governor in Council is
of opinion that a man
of the type of Sir George
Birdwood or Mr. Purdon
Clarke would do more to
wake up Art and Industry
in this Presidency in two
or three years than can
possibly be accomplished
in a period of indefinite
duration by the members
of the Revenue and Administra-
tive Establishments over-
burdened, as they are, with
the multifarious duties
immediately connected
with their respective offices.

10. His Excellency in
Council is of opinion that
the foregoing observations
sufficiently prove that
a scientific and industrial
Survey of Southern India
is

is desirable.

Firstly, with the object of
bringing to light articles
which may become sources of
wealth to the country.

Secondly, as a means of
educating the people.

Thirdly, as a tribute due
to science from all civilized
Governments and in view
to the collection of scientific
specimens of value not only
to India but to all countries
where science is cultivated.

line 6
New Para

He would therefore suggest
7 the temporary appointment
8 at an early date, of the following
9 officers to be paid from Provincial
10 Funds,

- 11 A Government Mineralogist.
- 12 and A Government Reporter
- 13 on Arts and Manufactures
- 14 Botany, Agriculture and a
- 15 more scientific system of
- 16 Forest Management having
- 17 already

Transpose as
marked

4 already, of late, been provided
 5 of for, by recent arrangement
 of 11. If this suggestion can be
 12 minds itself to the Government
 Confidant, the pay and allowances
 13 of these officers could be easily
 14 as quickly arranged. It will suffice
 15 to here to remark that both should
 16 be fixed on the liberal scale re-
 17 quired to bring from Europe for a short term of years
 18 a person of high acquirements and
 19 energy capable of communicating the knowledge they
 20 possess in such a clear and
 21 acceptable form as will allow
 22 of its being readily assimilated
 23 by the public and turned
 24 to practical advantage. It
 25 justly to be said. The Govt. would
 26 suppose that these officers
 27 should travel throughout
 28 the Presidency and report ^{briefly to Govt.} to them
 29 every two months ^{or}

on the ^{scientific} side chiefly
 of course on the economic aspect of
 their subjects. Their reports
 would usually be published
 soon after they were received
 and would pass into general
 circulation. The Government
 Central Museum which has
 already under its present
 excellent head, done so much
 good work as is possible in
 existing circumstances, would
 be a centre at which reports
 would be digested and spe-
 cimens collected. Science
 would thus be promoted.
 This is not ^{however} the main end.
 Government propose to
 accomplish by the scheme
 sketched in these proceedings
 the chief end in view is the
 collection ^{in the manner indicated} of a body of infor-
 mation indicated in the
minutes

9. manner which would be
of the ~~great~~ ^{and to the executive.} possible money
of value to the Presidency. The
Customs could be better suited
with the present to launch
such a scheme while time
manufacturers are demanded.
raw or half pre-
pared products and the
interests in Indian manu-
factures is unusually great.
At the same time of the
necessary inquiries be
left to private enterprise. It is believed by H. J. Council
it will take the efforts of
generations to secure the
results that would imme-
diately ensue from a care-
ful scientific and indus-
trial survey.

His

The Commission
of which we now
propose.

65
23 January 1882,
H. 195 A. Phil.

66
12. His Excellency in
Council would suggest
that the scheme should be
regarded as one of those
present needs of this Pre-
sidency to which the 5th
para of Mr. Logan's letter
of the 24th January last
refers and that the means
of meeting the consequent
charges may be provided
by a modification of the
land Revenue assignment.
It was expressly stated in
para 12 of the letter of this
Government of the 9th Janu-
ary last, No. 36, that the list
of further requirements given
therein was not exhaustive.
It contained such items of
expenditure only as were
then

then prominently before the
Government, and His Excellency
in Council is of opinion that
the scheme sketched in these
proceedings is inferior in
importance to some of those
mentioned, and may prove
a new point of departure
pregnant with most important
results.

H. 2. No. d/

J.W.
10/11/82 10.11.82.

To The Board of Revenue
Chief Engineer for Irrigation
Director of Public Instruction
Supt. Govt. Central Museum

Letter

To The Secretary to the Govt. of India
Dept. of Revenue &
Agriculture

Sir,

In reply to your letter no 6-157
dated the 8th February 1881 I am
directed to forward for the information
of the Govt. of India copy of
the proceedings of this Govt. no.

G.O. 28th Feb 1881. no 371

of this date containing the views
of the Right Honourable the Governor
in Council as to the desirability
of encouraging a diversity of
occupations & the development
of new branches of industry in
India & the suggestions of His
Excellency in Council to the
End together with the enclosure
noted in the margin for the
further elucidation of the
proceedings quoted above.

J.W.
10/11/82 10.11.82.

* Proposed enclosures.

His Excellency will doubtless
give opinion on this point & will
No. that had not be
enclosed

- (i) H. 2. The Governor's minute.
- (ii) Board's Proceedings
18th March 1882. no 826
- (iii) Dr. Hider's Note which is
now being printed.

The Secy sees no reason why
this excellent paper sh^d not
find a place in the proceedings. Print
by all means J.W.

orders solicited as to (i) + (iii)
also whether the G.O. shall be
communicated at this stage to the
authorities enumerated at its foot.

quite time enough when
we get reply from India. otherwise the
it into the Mail before

Sept 60.

Secretary of Agriculture.

The Right Hon^{ble} The Governor.

Since the letter to the Govt of India on the subject was sent forward much has occurred more especially with reference to Famine, Agriculture - But any in detail I think then that it would be such unnecessary to ask for another Betwixt - I have left. Had the papers told I could hit on a form for putting on state in Salafid wants before India, the India office I think something like this Order will do

Nov 13/02
Could not be better - but the personal & propiety persons should be eliminated.
15/11
* We are
Office
* No 6-154, dated 8th February 1881, Home, Revenue and Agricultural Department.

Revenue Dept.

No 1330 of 28. 11. 82

Read

Extract from the Report of the Indian Famine Commission, forwarded with letter from Government of India, No 6-154 (Home Revenue and Agricultural Department), dated 8th Feb. 1881 and

Note by Surgeon Major Bidie, Superintendent, Government Central Museum, dated 11. 10. 82.

Order.

The important subject discussed in the Extract from the Report of the Indian Famine Commission forwarded with the letter from the Government of India noted in the margin has received

received the careful consideration of the Right Honorable the Governor in Council, and he now proposes to put on record the conclusions at which he has arrived.

2. His Excellency in Council entirely agrees with the Famine Commissioners that it is desirable to foster the introduction or development of a diversity of occupations in this part of India and is no less persuaded that they are right in saying that the desired result can only follow upon an increased disposition to apply capital to industrial pursuits in this Presidency, which again will be a consequence of a growing conviction that adequate profits may be secured on investments.

investments under a condition of continued peace and good government."

3. There seems no doubt that capital is slowly flowing into South-west India. The increased cultivation of Cinchona, the gold enterprise in the Wynad, and other similar facts are at hand to show it.

4. The Famine Commission has, however, put its finger upon the real obstacle that stands in the way of the investment of English Capital in these regions when it calls attention to the want of exact knowledge of the country. True it is that much is known about it, but there are vast gaps in our knowledge and

no harm in
this one.

and no sensible capital-
-ist will risk his fortune
upon a series of perihases.

5. In the note by
Surgeon Major Bidie, read
at the commencement
of these Proceedings, will
be found a number of
instances of imperfect
knowledge, both scien-
-tific and economic, to
which it would be per-
-fectly easy to make
large additions.

6. It may for in-
-stance be asserted with
the utmost confidence, that
there is no single District
under the Government of
Madras in which a
trained expert, such as
Sir George Birdwood or
Mr. Gordon Clarke,
who visited Andra last
winter, would not after

a

a study of a few weeks
be able to bring to the
notice of even the ablest
District officers, a varie-
-ty of products, manu-
-factured or unmanu-
-factured and possessing
a marketable value,
with which these gentle-
-men were unacquaint-
-ed, while no information
is possessed by any one
at the Centre of affairs
which can supplement
the ignorance prevailing
amongst the local depu-
-sitories of power.

7. The Govt. [We] have no
doubt in the Madras mu-
-seum the commencement
of an admirable index
of the products of this
Presidency, but it is an
index very far indeed
from being complete,
while

while what is really wanted is a place to which the Agent of any Capitalist can go and see at a glance how far Madras can assist him in his objects.

8. His Excellency in Council is far indeed from doubting that the greater part of the available means of the State will be required for many years for the extension of Irrigation and of Railways, with or without, in either case the co-operation of private enterprise, nor has he anything to say against the wisdom of Government in certain rare and exceptional cases directly engaging in industrial pursuits

provided

provided always it gets out of them as soon as it conveniently can, having regard to all relevant circumstances, after the industry in which it has been a pioneer has been successfully established. It is however to the kind of work indicated in paras 10. 11 and 12 of the Extract forwarded by the Government of India that His Excellency in Council is disposed to attach for the present most importance. He is rejoiced to see the steps lately taken by the Government of India to give ceteris paribus preference to India, articles, and he would with the Famine Com-

- Missioner.

u-Missioners be prepared to
w-assist new local indus-
u-tries by obtaining need-
C-ful information from
s other countries or skilled
workmen and supervision.
It is quite possible, for
e instance, that it might
be right to do some-
thing of this kind here-
after for the iron in-
d-ustry in Salem and
Bellary. But the main
work of a Government
is to do what can be
done by no other Agency,
and one of these things in
a country like India
is the collecting, storing
and making available
a full and correct infor-
mation.

g. [Within the last
few months, the Forest
Department in this
Presidency

Presidency has been by
the permission of the Govern-
ment of India put on
a new and more scien-
tific basis. A European
botanist of consider-
able reputation is being
sent out by the Secre-
tary of State, and an
Agricultural Depart-
ment has been called
into existence.

10. It may then be
assumed that the Collec-
tion in Madras of im-
portant facts, in re-
lation to one large
department of human
knowledge will go on
more satisfactorily than
it has hitherto done,
and the only thing want-
ed in this connection is
to unite the Madras mu-
seum more closely with
the

the Botany, Forestry and
Agriculture of the Presi-
-dency. This need cost
- little, but it should be
carried into effect while
that Institution is under
its present excellent
- head. Much however
remains to be done. In
- the first place ^{the Govt.} [we] want
- to know and do not
- know all the manu-
- factured articles which
the Presidency produces,
- where they are produced,
- at what cost and which
- of them are likely to be
- saleable in Europe.
It is confidently believed
- that a considerable trade
- would spring up between
- not London only but
- various other capitals
- and Madras if it were
- easy to procure all

the

12
the articles which are even
now manufactured in this
Presidency, [Or] ^{the} first
want ^{of which} would seem then
to be a careful exam-
- ination of the whole
country by such an ex-
- pert as the gentleman
who was last year sent
out from South Kensington
- by the Lord President
of the Council.

11. Again the Geolo-
- gical Survey of India has
done admirable work
in Madras as elsewhere,
but its labors, if they
are to be useful to the
capitalist, should be
supplemented by those
of the mineralogist whose
attention would be direct-
- ed, not to the broad
- outlines of the landscape
and their underlying
causes,

Causes, but to the parti-
-cular products of parti-
-cular districts. It is
believes that many de-
-corative and construc-
-tive materials of va-
-lue lie unworked and
unknown awaiting the
attention of the expert
who shall supply pos-
-sible investors with
requisite knowledge
as to the quality,
locality and extent
of the deposit ^[existing].

12. The [Our] second want
seems then to be a
thorough examination
of the Presidency by a
Competent Mineral-
-ogist.

13. It will be ob-
-served that a con-
-siderable portion of
Dr. Bidie's paper,

read

13
read above, refers to na-
-tural History, and there
can be no doubt that
an examination of the
Presidency by several
competent persons with
reference to the economic
aspects of the various
sciences which are pop-
-ularly included under
that head would be of
great value ^{the results of in China} [we] [are] [he] [is]
-tates however to make
any definite proposal
with reference to this sub-
-ject until the results of
the suggestions which
[we] [are] [he] [is] about to make
become visible.

14. The definite pro-
-posal accordingly which
[we] [are] [he] [is] makes is the tempo-
-rary appointment,
at an early date, of
a Government Reporter
on

On Arts and Manufac-
- tures, and a Government
- Mineralogist for the
- Madras Presidency.
1. B. If this proposal
- commends itself to the
- Government of India,
- the pay and allowances
- of these officers could
- be subsequently arranged.
- It will suffice here to
- remark that both should
- be fixed on the liberal
- scale required to bring
- from Europe for a
- short term of years,
- men of high acquire-
- ment and energy ca-
- pable of communica-
- ting the knowledge they
- possess in such a clear
- and acceptable form
- as will allow of its
- being readily assim-
- ilated by the public
and

14
and turned to practical
advantage. The Govern-
- ment would propose that
these officers should travel
throughout the Presidency
and report to them every
two months, chiefly of
course, on the economic
aspect of their subjects.
Their reports would be
usually published soon
after they were revised,
and would pass into
general circulation.
The Government Central
Museum would be a cen-
- tre at which reports
would be digested and
specimens collected. Al-
- though science would
thus be promoted, this
is not the main end
Government propose to
accomplish by the
scheme sketched in
these

these proceedings. The chief
end in view is the collection
in the manner indica-
-ted, of a body of inform-
-ation which would be
of money value to the
Presidency and to the Ex-
-ecutive. No time could
be better suited than
the present to launch
such a scheme while
some manufacturers
are demanding new, raw
or half prepared products,
and the interest in Indian
manufactures is un-
-usually great. If the
necessary inquiries
be left to private enter-
-prise, it is believed by
His Excellency in Council
that it will take the
efforts of several gen-
-erations to secure the
results that would
immediately

15
immediately issue from
a careful, scientific
and industrial survey
the commencement of
which ^{the} we now propose.

27.11.82

1331 of 28.11.82

Letter

To The Secretary to the Govt. of
India

Dep't of Home: Rev & Agriculture

Sir in their
letters.

Sir, in reply to your letter no 6-
157 dated the 8th Feb 1881, I am
directed to forward for the information
of the Govt. of India copy of the
proceedings of this Govt. no 1538
of this date containing the views of
the Right Hon: the Governor in Council
as to the desirability of encouraging
a diversity of occupations and the
development of new branches of
industry in India & the suggestions
of His Excellency in Council to that
end.

27.11.82

Y.W

with 500 of 14.2.
8 of 28-12-82-

S. C.

Re. Diversity of Occ.

Prints

28. 11. 0

87

Mr. J. H. Brown

Wash. D. C.