M.R.O. 1—77,006—3-6-37.

(1) Number of pages 32 + 1 Map

(2) Date of repair 29-10-42

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 987-89-11 Press ~~Mis.~~

Dated 16-11-1893.

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following letter from Dr. W. KING, Director, Geological Survey of India, to the Secretary to Government, Revenue Department, dated Ootacamund, 10th October 1893, Tour No. 4—1:—

In connection with the further deputation of an officer of this department to the Madras Presidency, I have the honour to write as follows for the information of the Government of Madras.

1. A very large extent of the Presidency has already been examined by the Geological Survey, except parts of Travancore, Malabar, Mysore, Coorg and the Northern Circars beyond Rajahmundry: in other words, all the areas of stratified rocks (colored otherwise than lake and purple in the accompanying map) are known in fair detail; but the very extensive region of crystalline and transition rocks (colored lake and purple) is only known in certain areas in some detail. The time and opportunity have now come for working out the latter rocks (crystallines and transitions), and it is, while doing this, that more will be learned of metalliferous and other mineral products which hold forth promise of economic development.

2. The more manifest minerals in the Presidency are gold, iron ores, corundum, manganese, steatite, kaolin, magnesite, graphite, and mica. Others, such as the phosphates and celestine, occurring among the stratified rocks (in Trichinopoly) have only lately been brought into notice. Of copper and lead, our knowledge is fairly complete.

3. The further detailed examination of these minerals, or of their possible occurrence, is essentially dependent on a careful study of the rocks with which they are associated, the more special branch of geological surveying in this connection being what has of late come to be called petrology: so that it is decidedly against all systematic survey that the officers should be deputed hither and thither after any particular region of reported mineral occurrence; unless the department, as represented by the officer posted for Madras, is satisfied, from the already ascertained geology of the country, that it is worth while doing so.

4. The mineral resources of the country should certainly be made known in as plain and understandable a manner as possible, and to this end the Government of India is supplementing the aims of the Imperial Institute by preparing hand-books, some of which have already been issued as compiled by the Geological Survey of India. I now propose to further supplement this means of information for Madras by preparing district hand-books which will appear in the first instance in the 'Records' of the survey, a sufficient number of copies being provided for Madras which the Government can then duplicate in such form as may seem desirable.

5. The districts of Coimbatore, Cuddapah, North Arcot and Salem appear to be mainly worthy of attention, Salem and Coimbatore being those from which we have the more recent lights. I myself would prefer taking up Salem because its petrology is of great interest, while attention has been lately redirected not only to its iron and corundum deposits, but to the possible utilization of other mineral occurrences in the rocks associated with these ores.

6. It is the western portion of the Salem district which is thus interesting, and after very careful consideration as to a fitting officer for such a survey, I have decided on posting Mr. Deputy Superintendent C. S. Middlemiss who will work on the lines indicated by the recent observations of Mr. Holland while engaged in the same district in connection with his Imperial Institute Hand-book on the Iron Ores of Southern India.

7. The mineral occurrence or zone which Mr. Middlemiss will have to rely on in his projected course over the country will be that of corundum which it is expected will be sufficiently prominent in its thickness and extent; and he may also in this progress pass on to developments of auriferous rocks (the Dharwar series) on the borders of Mysore.

8. It is, however, necessary to premise that this area cannot be gone over in a hurry; it may take two seasons, *i.e.*, until the end of May 1895, or it may take a lesser time. Any idea of running over each district, as a preliminary measure, giving a few months to a district, is to be deprecated, because we already know that much of the districts. Some special ore or mineral might indeed be taken up, say gold; but even then the rock association must be studied, for the mere fact of old gold workings is just as much indication of a played-out gold field, as of a tract which may be re-opened out with success: Wainad being a case in point. In any case the survey of an auriferous tract requires time.

9. Having full confidence in Mr. Middlemiss' ability to carry out the scheme of survey proposed, I would ask that he be left free to take up the country as he sees fit, in the conduct of which he will be in constant and direct communication with me. In all other ways, as a geological adviser to the Government, or in being at the Government's disposal for the examination, avoiding needless interference with systematic work, of particular areas calling for urgent opinion, he will be, to all intents and purposes, the Madras Geologist. Mr. Middlemiss is to leave Calcutta by steamer on the 2nd November and will report himself to you in Madras on or about the 7th of the same month and after that, with your instructions, to the Collector of the district who can—as I myself always had to gratefully acknowledge when Deputy Superintendent for Madras—arrange that the needful assistance in the way of supplies and camp transport be afforded by the local authorities. The work or procedure of the survey is conducted on a system of field and recess seasons; field work cannot be done in the rains or in the very hot and unhealthy months, so that Mr. Middlemiss would fix his recess quarters or station conveniently for communication with the Government. I should like him to work in some form of communion with the Superintendent of the Government Central Museum, but unofficially.

10. As a rule, all official publication of geological work prior to issue to the public is submitted to the Director of the Survey, but except in the case of the more important memoirs, I can rely on Mr. Middlemiss' pronouncements not needing this authorization. All special examinations or assays of minerals are made at Calcutta under Mr. Holland who is the officer in charge of the Museum and Laboratory of the Survey. In case of any suggestion by Mr. Middlemiss for the exploitation or quarrying of minerals, the necessary funds would, I presume, have to be provided after due recommendation by the Director of the Survey.

11. In conclusion, I may say that I shall always be ready to modify any plan or scheme arranged with my Deputy Superintendent or adopt any suggestion accordant with the views of the Government of Madras so far as is consistent with the exigencies of the progress of the department.

READ—the following telegram from the Secretary to Government, Revenue Department, to the Director, Geological Survey of India, Calcutta, dated Ootacamund, 18th October 1893.

"Please send dozen copies, if available, of colored map forwarded with your letter of 10th instant."

READ—the following telegram from the S
India, to the Secretary to Governm
31st October 1893:—

"Twelve copies each map of India and
Middlemiss unable leave this before 14th, so

ORDER—dated 16th November 1893, No. 98

Miscellaneous.

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in Madras. The Director of the Geological S
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correct.

2. The Board should issue special orde
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connected with his official duties.

3. Six spare copies of each of the geol
geology received from Dr. King will be forw
bution to Collectors concerned.

(True Ex

To Dr. W. King, Director, Geological Survey of I
" the Commissioner of Revenue Settlement, Lan
" Mr. C .S. Middlemiss, Deputy Superintende
Copy to the Commissioners of Land Revenu
" the Editors' Table.

No. 987A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) E. GIBSON,
Ag. Secretary to Government.

Exd. S. J. Pereira.

130 Copies.

of Geological Survey of
epartment, dated Calcutta,

eology despatched to-day.
out 18th."

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the necessary instructions
n the arrival of that officer
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f India and the manual of
Board for record and distri-

E. GIBSON,
Secretary to Government.

d Agriculture,
pies each of map and book.
urvey.

W/ Enquiries

Govt. of {1893} Mad

REVENUE.

X
A

Issued.

Recd. Enl

G.O., 16th November 1893,
Nos. 987, 987A.

NOVEMBER.

Mineralogical Survey.

Approving the proposals of Dr. King in connection with the deputation of an officer of Geological Survey Department for — in certain Districts of the Madras Presidency, and stating that the necessary instructions will be issued to Mr. Middlemiss, the officer deputed for the purpose, on his arrival in Madras.

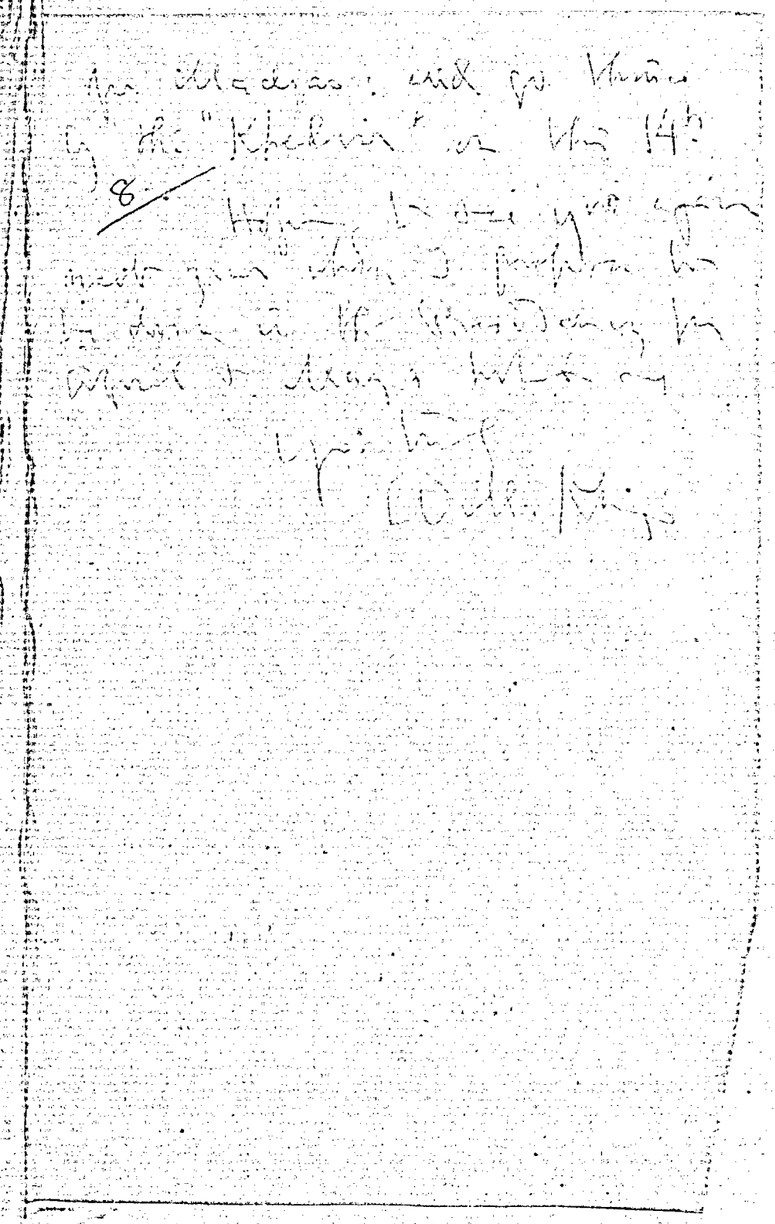
GEOLOGICAL SURVEY OF INDIA

Wednesday 11th Oct. 11th 1893

My dear Gibson.

My Letter to Foote through you gives my views and I hope the matter of Middlemiss' deputation will be satisfactory.

As regards the question of Mica & Phosphate bearing [illegible] which we have to refer you have my full opinion until I get back to Calcutta, when I regret to find I must [illegible]



0/10—2,000—13-3-93.

10 (1893.)

REVENUE DEPARTMENT.

ABSTRACT.

D.O. Current Number. 44

From

Dr. W. King.
Ootacamund.

Dated 11 Oct.
Received 12 "
Enclosures

No.

SUBJECT.

Stating that as he has to go to Calcutta he would report the question of Mica and Phosphates bearing Lakes on Dec.

Lodged

To be allotted with the [illegible]

No. Jour 4.
1.

GEOLOGICAL SURVEY OF INDIA

P1

Ootacamund
October 10th 1893

11

From W. King
Director, Geological Survey of India

GEOLOGICAL SURVEY OF INDIA
11 OCT 93
REVENUE DEPARTMENT

To The Secretary to Government, Madras
Revenue Dept.

Sir,

In connection with the further deputation of an officer of this Department to the Madras Presidency, I have the honor to write as follows for the information of the Government of Madras.

1. A very large extent of the Presidency has already been examined by the Geological Survey, except parts of Travancore, Malabar, Mysore, Coorg, and the Northern Circars beyond Rajahmundry. In other words, all the areas of stratified rocks (colored chiefly khaki, lake and purple, in the accompanying map) are known in fair detail; but the very extensive region of crystalline and transition rocks (colored lake and purple) is only known in certain areas in some detail. The time and opportunity have

12

now come for working and the latter rocks (Crystallines and Transitions): and it is while doing this, that more will be learned of the metalliferous and other mineral productions which hold forth the promise of economic development.

2. — The more manifest mineral in the Presidency are gold, iron ore, manganese, steatite, kaolin, corundum, graphite, and mica. Others, such as the phosphates and celestine occurring among the altered rocks (in Trichinopoly) have only lately been brought into notice. Of copper and lead ores known to exist, the deposits are comparatively small.

3. — The Indian metalliferous deposits are ancient, and their formation or occurrence is essentially dependent on a careful study of the rocks with which they are associated; therefore a special branch of the geological survey of India is engaged in this connection, being known as the Economic Branch, in which the officers are specially instructed to devote their attention and time to any particular

region of reputed mineral occurrence; when the Department, as represented by the officer posted for Madras, is satisfied, from the already ascertained geology of the country, that it is worth while doing so. 13

4. — The mineral resources of the country should certainly be made known in as plain and intelligible a manner as possible; and to this end the Government of India is supplementing the aims of the Imperial Institute by preparing Handbooks some of which have already been issued or completed by the Geological Survey of India. I may propose to further supplement this means of information for Madras by preparing district handbooks which would appear in the first instance in the Records of the Survey, a sufficient number of copies being furnished for Madras that the Government may have them disposed of in such form as may seem desirable.

5. — The districts of Coimbatore, Cuddapah, Nellore (north), and Salem appear to be mainly worthy of attention; Salem and Coimbatore being those from which in the near future the most valuable returns might be expected. I myself would prefer taking up Salem because its geology is of great interest while attention has been lately re-directed more to the

to its iron and corundum deposits, but to the [illegible] provides satisfactory evidence of other mineral occurrences in the rocks associated with these ores. VI

6.— In the western portion of the Salem district which is thus interesting: and after very careful consideration as to a fitting officer for such a survey I have decided on posting the Dep[uty] Supt. C. S. Middlemiss who will work on the lines indicated by the recent observations of Mr Holland while engaged in the same subject in connection with the Economical Districts Handbook, in the Tin Ores of Southern India.

7.— The mineral occurrences or signs which Mr Middlemiss will have to rely on in his prospecting course over the country will be those of Corundum which are expected will be sufficiently frequent in the Trichinopoly and Salem districts and Tinstone: and he may also in this progress pass on to the determination of auriferous rocks (the Dharwar Series) on the [illegible] borders of Mysore.—

8.— It is, therefore, necessary to premise that this area cannot be gone over in a hurry: it may take this season, i.e. until the end of May 1894, or it may take a less or less: Any idea of planning out each district, as a finishing season, giving a

GEOLOGICAL SURVEY OF INDIA

B 3

15

few months to a district, is to be deprecated, because we already know that much of the districts. Some special ore or mineral might be taken up, say gold; but even then the rocks associated must be studied, for the many facts of old gold workings is just as indicative of a played-out gold field, as of a track which may be re-opened out with success: Wainad being a case in point. In any case the survey of an auriferous track requires time.

9.— Having full confidence in Mr Middlemiss' ability to carry out the scheme of survey proposed, I would ask that he be left free to take up the country as he sees fit, in the conduct of which he will be in constant and direct communication with me. In all other ways, as a geological adviser to the Government, or in being able the Government's disposal for the Examination — avoiding needless interference with systematic work, of particular areas calling for urgent opinion, he will be to all intents and purposes the Madras geologist. Mr Middlemiss

to leave Calcutta by steamer on the 2. November and will report himself to you at Madras on or about the 20th of the same month and after that, will engage his services to the Collector of the district who can — as I suppose always, I trust gratefully acknowledge when help such help for Madras — arrange that the needful assistance in the way of supplies and camp transport be afforded by the local authorities. The work & procedure of the Survey is conducted on a system of field and recess seasons: field work cannot be done in the rains, & in the very hot, and unhealthy months; so that the Mineralogist would visit this district during a station convenient for communication with the Government. I should like him to work in some form of connexion with the Superintendent of the Government Central Museum, both temporarily.

10. — As a rule, all official publications of geological work fitted to come to the public is submitted to the Director of the Survey — but except in the case of the more important Memoirs, I can rely on the discretion

misc. engagements not needing his authorization. All official examinations & assays of minerals are made at Calcutta under the Holland who is in charge of the Museum and Laboratory of the Survey. In case of any important by the Middlemiss for the exploitation & arranging of minerals, the necessary funds would be passed, then by the Director of the Survey.

11. — In conclusion, I may say, that I shall always be ready to modify any plan or scheme arranged with my colleagues, or adopt any suggestion acceptable with the views of the Government so far as is consistent with the exigencies of the progress of the Department.

I have the honour to be
Sir,
Your most obedient servant

C. Ball. Major.
Director Geological Survey.

GEOLOGY OF
INDIA
(Second Edition)
1891

Scale 1 Inch = 96 Miles or 1:6,082,560

In Afghanistan the Trias is grouped with the Jura, not with the Carboniferous &c.

The area coloured brown consists of unfossiliferous Slates of unknown age, probably mesozoic.

A large portion of the unfossiliferous beds coloured Silurian in the North West Himalayas are probably of later date and may be mesozoic in part

The age of the rocks in the area coloured brown is uncertain.

Triassic and Cretaceous fossils have been found in the area coloured brown. The age of the rocks generally is unknown.

62° 66° 70° 74° 78° 82° 86° 90° 94° 98° 102°

Tropic of Cancer

ARABIAN SEA

BAY OF BENGAL



Geol. Survey.—Mar. 93—1,530.

aceous fossils have been
oured brown. The age
ally is unknown.

The central range of the Tenasserim Peninsula is composed of metamorphic rocks, overlaid by unfossiliferous sedimentary beds and limestone of carboniferous age at Moulmein.

Coal of Tertiary and Cretaceous age is found in the Tenasserim Valley. There is much limestone of unknown age in the Islands of the Mergui Archipelago.

Litho., S. I. O., Calcutta.

$\frac{O}{1s}$—2,000—13-3-93.

16

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misl. pronouncements not needing [illegible] authentication. All official examinations or assays of minerals can be made at the Laboratory under Mr Hatland who is in charge of the Museum and Laboratory of the Survey. On care of any enquiries by the Middlemiss for the application or arranging of minerals, the necessary funds would be drawn, when to be required, after due recommendation by the Director of the Survey.

11. — On conclusion, I may say, that I shall always be ready to modify any plan or action arising with any difficulty or doubt may occur to you according with the views of the Government of India as far as is consistent with the requirements of the progress of the Department.

I have the honour to be
Sir,
Your most obedient servant
C. A. King
Director G. S. of I.

$\frac{0}{15}$—2,000—13-3-93.

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7. — The mineral occurrence or zone which Mr Middlemiss will have to rely on in his projected course over the country will be that of Corundum which it is expected will be sufficiently prominent in its thickness and extent: and he may also in this progress pass on to developments of auriferous ores, rocks (the Dharwar Series) on the ~~north-western edge of the [illegible]~~ borders of Mysore. —

8. — It is, however, necessary to premise that this area cannot be gone over in a hurry: it may take two seasons, i.e. until the end of May 1895, or it may take a season longer. Any idea of running over each district, as a preliminary measure, giving a

GEOLOGICAL SURVEY OF INDIA

p 3

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O/15—2,000—13-3-93.

(1893)

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5 — The districts of Coimbatore, Cuddapah, Nellore proper, and Salem often to be mainly worthy of attention; Salem and Coimbatore being those from which we have the most recent lights. I myself would prefer taking up Salem because the petrology is of great interest which attention has been lately specially re-directed, not only

0/10—2,000—13-3-93.

10 (1893.)

REVENUE DEPARTMENT.

ABSTRACT.

D.O. Current Number. 44

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Dr. W. King.
Ootacamund.

Dated 11 Oct.
Received 12 "
Enclosures

No.

SUBJECT.

Stating that as he has to go to Calcutta he would report the question of Mica and Phosphates leasing rates on.

Lodged

To be attended with the [illegible]

No. Jour 4.
1.

GEOLOGICAL SURVEY OF INDIA

Ootacamund
October 10th 1893

11

From W. Will. King
Deputy Superintendent Geological Survey of India

To The Secretary to Government, Madras
Revenue Dept.

GOVERNMENT OF MADRAS
11 OCT 93
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for Madras: and go thence
by the "Khedive" on the 14th
8.
Hoping to see you again
next year when I purpose to
be down in the Presidency in
April or May: believe me
Yours truly
C. W. [illegible]

4/ Original

Govt. of {1893} Mad

REVENUE.

X A

Issued.

Recd. En

G.O., 16th November 1893, Nos. 987, 987A.

NOVEMBER.

Mineralogical Survey.

Approving the proposals of Dr. King in connection with the deputation of an officer of Geological Survey Department for — in certain districts of the Madras Presidency, and stating that the necessary instructions will be issued to Mr. Middlemiss, the officer deputed for the purpose, on his arrival in Madras.

5

GEOLOGICAL SURVEY OF INDIA

Wednesday [illegible]
Oct. 11th 1893

My dear [illegible]

My letter [illegible] through [illegible] by this post, and I hope the matter of Mr. Middlemiss's deputation will be understood.

As regards the question of Mica [illegible] I should not be able to [illegible] you [illegible] until I get back to Calcutta, when I [illegible] think I [illegible] the 14th or 15th of this month. I [illegible]

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"Twelve copies each map of India and eology despatched to-day. Middlemiss unable leave this before 14th, so e ut 18th."

ORDER—dated 16th November 1893, No. 98

Miscellaneous.

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2. The Board should issue special orde of his letter read above is every possible assistance to Mr. Middlemiss w lectors concerned to render connected with his official duties. s their districts for purposes

3. Six spare copies of each of the geol f India and the manual of geology received from Dr. King will be forw Board for record and distribution to Collectors concerned.

(True Ex E. GIBSON,
Secretary to Government.

To Dr. W. King, Director, Geological Survey of I
„ the Commissioner of Revenue Settlement, Lan 1 Agriculture,
„ Mr. C .S. Middlemiss, Deputy Superintende pies each of map and book.
Copy to the Commissioners of Land Revenu urvey.
„ the Editors' Table.

No. 987A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) E. GIBSON,
Ag. Secretary to Government.

Exd. S. J. Pereira.

130 Copies.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following letter from Dr. W. KING, Director, Geological Survey of India, to the Secretary to Government, Revenue Department, dated Ootacamund, 10th October 1893, Tour No. 4—1 :—

In connection with the further deputation of an officer of this department to the Madras Presidency, I have the honour to write as follows for the information of the Government of Madras.

1. A very large extent of the Presidency has already been examined by the Geological Survey, except parts of Travancore, Malabar, Mysore, Coorg and the Northern Circars beyond Rajahmundry : in other words, all the areas of stratified rocks (colored otherwise than lake and purple in the accompanying map) are known in fair detail; but the very extensive region of crystalline and transition rocks (colored lake and purple) is only known in certain areas in some detail. The time and opportunity have now come for working out the latter rocks (crystallines and transitions), and it is, while doing this, that more will be learned of metalliferous and other mineral products which hold forth promise of economic development.

2. The more manifest minerals in the Presidency are gold, iron ores, corundum, manganese, steatite, kaolin, magnesite, graphite, and mica. Others, such as the phosphates and celestine, occurring among the stratified rocks (in Trichinopoly) have only lately been brought into notice. Of copper and lead, our knowledge is fairly complete.

3. The further detailed examination of these minerals, or of their possible occurrence, is essentially dependent on a careful study of the rocks with which they are associated, the more special branch of geological surveying in this connection being what has of late come to be called petrology : so that it is decidedly against all systematic survey that the officers should be deputed hither and thither after any particular region of reported mineral occurrence; unless the department, as represented by the officer posted for Madras, is satisfied, from the already ascertained geology of the country, that it is worth while doing so.

4. The mineral resources of the country should certainly be made known in as plain and understandable a manner as possible, and to this end the Government of India is supplementing the aims of the Imperial Institute by preparing hand-books, some of which have already been issued as compiled by the Geological Survey of India. I now propose to further supplement this means of information for Madras by preparing district hand-books which will appear in the first instance in the 'Records' of the survey, a sufficient number of copies being provided for Madras which the Government can then duplicate in such form as may seem desirable.

5. The districts of Coimbatore, Cuddapah, North Arcot and Salem appear to be mainly worthy of attention, Salem and Coimbatore being those from which we have the more recent lights. I myself would prefer taking up Salem because its petrology is of great interest, while attention has been lately redirected not only to its iron and corundum deposits, but to the possible utilization of other mineral occurrences in the rocks associated with these ores.