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MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.	971	Press Mis.
Dated	5-7-	19 1871

Not to be folded or roughly handled

Jan

No. 24. Read the following letter from THOMAS OLDHAM, Esq., Superintendent, Geological Survey of India, to the Secretary to Government, Fort St. George, dated Calcutta, 7th June 1871, No. 116:—

When recently commenting on the report and specimens forwarded by Colonel Applegath from the vicinity of Juggiapettah, I had occasion to bring to the notice of His Excellency the Governor of Madras that, from the first time, the officers of the Geological Survey had had an opportunity, during the past season, of visiting the lower portion of the Godavery valley, and had thus been able to trace the extension of the rocks which, further to the north in the same valley, immediately cover the coal measures well into the north-eastern corner of the Madras Presidency. These rocks cover a considerable area to the north of Ellore. No coal has been seen or is known within the Madras Presidency, but it is possible it may occur. But before any very definite opinion as to this possibility can be formed the country must be examined in detail.

2. I have now the honour to enclose to you copies of a brief notice of the extent of these rocks, and on the probability of coal being found in them, by Mr. Blanford who examined them.

3. The investigations of last season have very largely diminished the extent of area which we were compelled to represent as "*unknown geologically*" when reporting on the "coal resources of India" in 1867. And we now know that these rocks, which ordinarily overlies the coal, extend almost uninterruptedly from Chanda in the north to near Rajahmundry in the south along the valley of the Godavery. Unfortunately the occurrence of these upper rocks is no evidence that the others exist beneath them, although it establishes the possibility of this existence.

4. While, therefore, holding out a hope that coal may yet be found within this area, I would urge upon the serious consideration of His Excellency the Governor of Madras in Council that he should permit a more careful geological examination to be made in more detail, before attempting any practical explorations which, commenced at hap-hazard, could only lead to an inevitable waste of time and money, without any definite results.

5. I hope the Geological Survey may be able, during the next season, to clear up these doubts, and to form a more definite opinion as to the prospects or chances of coal being found, and may be able to fix on properly-selected localities for boring, &c., the results of which examination shall, of course, at once be submitted to His Excellency in Council.

No. 25. ORDER THEREON, 5th July 1871, No. 971.

Communicated to the Collectors of the Godavery and Kistna Districts, to Dr. Hunter, and Colonel Applegath.

*Proceedings of the Madras Government, Public Department,
5th July 1871.*

2. The Government trust that Mr. Oldham may be able to complete the examination of the tract of country indicated in the coming working season, and that he will keep them informed of all results that may be obtained.

(True Extract.)

Acting Chief Secretary.

To the Collector of the Godavery District.

„ „ Kistna „ „
„ Superintendent, Geological Survey of India.
„ Director of Public Instruction.
„ Lieutenant-Colonel F. Applegath.
„ Revenue Department.

Exd. J. Wright.

Obbt. of 1871 ~~ST~~ADRES.

PUBLIC.

To
THE COLLECTOR OF THE
GOLDAVERY DISTRICT,
&c., &c., &c.

Dated July, 5th.

Recd.

Encl.

G. O., 5th July 1871, No. 971.

JULY,
Nos. 24-25.

Communicating the further report of the Superintendent, Geological Survey of India, on the localities where coal may be found, and requesting Mr. Oldham to keep the Government informed of all results that may be obtained on the examination of the tract of country indicated in the report.

No 116. 3 +
From my
The Superintendent Geol. Surv. of
India.

To
The Secretary to Government of
Madras.

Dated Calcutta June 7th 1871.

Sir,

When recently commenting on the
report and specimens forwarded by Colonel
Applegath from the vicinity of Jugginpatla
I had occasion to bring to the notice of His
Excellency the Governor of Madras, that for
the first time, the officers of the Geological
Survey had had an opportunity during the
past season of visiting the lower portions
of the Godavery valley, and had thus been
able to trace the extension of the rocks, which
further to the north in the same valley imme-
diately cover the coal measures, well into
the north eastern corner of the Madras
Presidency. These rocks cover a consi-
derable area to the north of Ellore, no
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the Madras Presidency, but it is possible
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formed the country must be examined in
detail.

2. I have now the honor to enclose to you copies of a brief notice of the extent of these rocks, and on the probability of coal being found in them, by Mr. Planford who examined them.

3. The investigations of last season have very largely diminished the extent of area which we were compelled to represent as "unknown geologically" when reporting on the "Coal Resources of India" in 1867. And we now know that these rocks, which ordinarily overlie the coal ^{beds} ~~strata~~ & run interruptedly from Chanda in the north to near Rajamundry in the south, along the valley of the Godavary. Unfortunately, the occurrence of these upper rocks is no evidence that the others exist beneath them, although it establishes the possibility of this existence.

4. While, therefore, holding out a hope that coal may yet be found within this area I would urge upon the serious consideration of the Government, the Council in Council that he should permit a more careful geological examination to be made in more detail, before attempting any practical exploration, which commenced at hap hazard could only lead to an inevitable waste of time and money.

5. I hope the Geological Survey may be able during the next season to clear up these doubts and to form at more definite opinion as to the prospects or chances of coal being found, and may be able to fix on properly selected localities for boring, the results of which examinations shall of course at once be submitted to His Excellency in Council.

I have the honor to be,
Sir,
Your most Obedt Servant

Wm. M. M. M.
Superintendent of the Survey

Local Secy Office of
111 Narayana Street

Recent explorations in the Godavery valley below Sironcha, and in parts of the adjoining country, have enabled me to ascertain that a very large area is occupied by representatives of the various formations which have been described in Bengal and the Central Provinces under the names of Panchet, Damúda, and Tálchir. The occurrence of sandstone in the bed of the Godavery and along its banks throughout a large portion of the river's course below Sironcha was, I believe, first made known by Mr. Wall in the Madras Journal of Literature and Science, New Series, Vol. 11. It now appears that sedimentary beds belonging to the Damúda group and its associates extend, apparently without a single break* from the neighbourhood of Mángl and Phizúdra, 34 miles in a direct line north-north-west of Chánda, to Lingálá on the Godavery, just above the top of the first barrier and 14 miles above Dúmagúdiám, or throughout a distance of 200 miles. A break then occurs which extends along the river for about 25 miles. The sandstones re-appear at Raigúdiám, about 6 miles below Bhadráchallam, and thence continue along the south or right bank of the river with one brief interruption for about 15 miles, terminating a little below the village of Mádeváram. These beds, as will presently be shown, extend far to the southwards.

Metamorphic and Vindhyan rocks occupy the bed of the river at the second and third barriers and for some miles below them, the remaining portion of the Pranhita and Godavery are in the soft sandstones and the associated beds, and at both barriers a continuous belt of the later sedimentary formations on the right bank of the river, though at a distance from its course, unites the areas occupied by the same rocks in the river's bed.

Throughout the whole valley of the Pranhita and Godavary† below the third barrier at the spot where the Wardhá and Waingangá unite to form the first named stream, the area occupied by the plant-bearing sandstones on the left (north and east) bank of the river is but trifling, whilst from the right bank these beds extend for a great, but hitherto unascertained, distance into the little known tracts of the Nizam's territories belonging to the Rámghir and Kamarnet Sircars, and perhaps into Warangal.

In the same manner the sandstones below Bhadrachallam occupy an area not exceeding 8 or 10 square miles north of the Godavery, while to the south they cover a tract of country 25 miles in breadth from east to west near the river, and gradually becoming broader till it is at least 50 miles across. It extends from the Godavery near Bhadrachallam till it is lost, 60 miles further to the south, beneath the coast alluvium in the neighbourhood of Ellore. To the south-east it stretches nearly to Rajamandri, extending to the banks of the Godavery

* This cannot be stated positively as yet, some portions of the ground not having been examined. But no break exists exceeding a very few miles in extent.

* This cannot be stated positively as yet, but a break exists exceeding a very few miles in extent.

Ruthie, 1891 Department
From
Supt. Geological Survey
G. Smith.
N.W.C.

near Polavaram, below the great gorge in the metamorphic rocks through which the river runs. At Pangadi near Rájámandri the sandstones are covered up by the bedded dolerites of the Deccan trap, just as, 300 miles in a direct line to the north-west, the same sandstones, in the districts of Chanda and South-east Berar, disappear beneath the same traps on the eastern verge of the great basaltic area of the Deccan.

The proportion of the enormous extent of sedimentary rocks in the valley of the Godavery and its neighbourhood, which is occupied by the valuable coal-bearing beds of the Damúda group, appears, so far as research has hitherto extended, to be extremely small. Here and there along the boundary of the sandstone tract, beds are found with the mineral character of the Barákar group of Bengal. Such is the case near Chandá, and the same beds occur at Lingálá, above the first barrier, and at Mádaváram below it; and in each case where these rocks have been observed, coal beds, sometimes of little or no value it is true, have been found associated with them. It is highly probable that further examination will show the presence of these valuable beds in several places where they have not hitherto been detected, but the search is difficult, because the surface of the country in which the sandstones are found is greatly concealed by a thick covering of sandy clay and sand, derived from the disintegration of the soft argillaceous sandstones.

The lower Panchets of Bengal, to which the name Panchet should perhaps be restricted, appear to be represented by rocks of similar mineral character in the Godavery valley, but further examination of these beds is necessary in order to determine their position in the series and their relations to the limestones containing fish remains, which are met with in several places near Sironcha.

The Tálchirs, at the base of the great series, precisely resemble their representatives elsewhere, but the unconformity between them and the Damúdas appears to be greater than usual.

These formations, the Barákars, Panchets, and Tálchirs, together do not take up a tenth part of the area occupied by the sandstones. The great bulk of these consist of coarse argillaceous sandstones and grits of no very marked character, with hard ferruginous bands. The few fossils found in them, chiefly *Vertebraria*, *Calamites*, and *Glossopteris*, are identical with Damúda forms, but the mineral character of the beds taken as a whole is always slightly and sometimes remarkably different from that of any true Damúda beds, as found elsewhere, while the fossil plants seem to preclude the idea of associating these rocks with the Panchets, the flora of which, so far as it is known, is very different. One of the most striking distinctions between these beds and the Damúdas proper is the absence of coal and of any carbonaceous matter in the former, even the plant remains having lost their carbon and existing as mere impressions. It appears, therefore, desirable, both for scientific and economic reasons, to apply a distinctive term to these beds, restricting the name Damúda to the group or groups which usually contain coal. For these reasons, I proposed some years since the name of *Kámthi* beds for some rocks near Nágpúr which belong to this group. The name has since come into more general use on the Survey, and it has become necessary briefly to repeat the reasons for first adopting it. The *Kámthi* group is intermediate in position between the Barákar and Panchet groups.

So far as their geological examination has progressed, the immense mass of argillaceous sandstones which occupy so large a proportion of the country in Chánda and South-east Berar appears to belong to the *Kámthi* group. The same is probably the case with the sandstones of Sironcha and those on the right bank of the Godavery, which have, however, hitherto remained unexplored. The beds extending south of the Godavery towards Ellore and Rájámandri appear to me to differ in no important respect from the rocks in Chánda.

Sections, except on the sides of hills, are unusually rare, precisely as in the more northern area, and the great mass of the rocks consists of white and brown argillaceous sandstones, hard grit, and conglomerate, with so little marked mineral character that they might be either Barákar, *Kámthi*, or Panchet. On the Godavery, below Bhadráchallam, it is very difficult to draw a line between the Damúda and *Kámthi* groups.

But in the neighbourhood of Ellore and Rájámandri the sandstones are frequently variegated in a peculiar and characteristic manner. They are associated with numerous hard bands of ferruginous grit and compact red and yellow shale. In one instance sandstone was found with a peculiar semi-vitreous texture, which is very characteristic of some beds in Chánda and Berar. All these characters lead unmistakably to the conclusion that these rocks are the representatives of the *Kámthi* beds of Nágpúr and Chánda.

Let it not be supposed that this conclusion is a mere abstract scientific matter, interesting perhaps to geologists, but of no importance to the world in general. In reality it involves a most serious economic question. It is quite unnecessary to remark that the discovery of coal in the Madras Presidency is a great desideratum. Hitherto, despite much research, neither coal nor the rocks with which coal is associated in India have been met with in any part of the country south of the Godavery. The tracing, therefore, into the Madras Presidency of sandstones belonging to the great series of which the coal-bearing beds of Bengal form a portion is of great interest and importance, because there is a possibility of the coal-bearing beds being associated with them.* The greater part of the working season of 1870-71 has been devoted to the very important borings for coal on the Godavery, and I have been unable to give nearly sufficient time to the examination of the Ellore and Rájámandri country to enable me to ascertain with certainty the presence or absence of Damúda beds. Indeed, the surface of the rocks, although much better exposed than is the case a little further to the north, is so far concealed that it will probably be necessary to bore in order to determine this question. But although there is fair possibility of coal-bearing rocks being found, I could not positively detect their presence anywhere, and in one or two places, the base of the *Kámthi* was seen resting upon the metamorphic rocks, all beds of the Damúda group being wanting.

In conclusion I may briefly describe the limits of the *Kámthi* sandstone area near Ellore and Rájámandri. The northern boundary runs nearly east and west from Raigúdiám on the Godavery to Palúcha. There it turns sharply to the south, and the eastern boundary extends thence at first south, then south-east to Chintalpúdi, 20 miles north-by-west of Ellore. Thence, after making a sweep to the westward, the boundary runs to the south, passing just east of the large town of Núzed (Noosaid or Noozudoo), whence it turns south-west, and finally reaches the alluvial plain of Ellore near a village called Krishnawáram, at a spot nearly 20 miles east-by-north of Bezwára, and 16 miles west-by-south of Ellore.

Along the southern part of this boundary, near Núzed, the base of the sandstones is well exposed in several places, and, so far as I was able to examine, there was no trace of Damúda rocks. Still, further and closer examination is desirable before the same conclusion can be arrived at for the whole country.

The *Kámthi* beds stretch along the edge of the alluvium from the point already mentioned east-by-south of Ellore to the Godavery, trap intervening near the latter river at Pangadi, as already mentioned. The beds are in general flat, or dip at low angles.

* So far as I am aware, — I am writing without means of reference, and may be mistaken — the occurrence of these sandstones near Ellore and Rájámandri has not before been noticed.

Pt. 73 July 1871
In B. N. 24

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In B. N. 1234

The eastern or rather north-eastern limit of the sandstone area extends from the Godavery at Pondigul, 12 miles below Bhadrachallam, through the western portion of the mass of hills which culminate at the trigonometrical station of Rajgoda. The boundary passes a few miles east of Ashrapetta, and thence trends nearly due east in the direction of a point on the Godavery a little south of Polavaram. Whether it crosses the river has not been ascertained.

This boundary also has only been most cursorily examined, and it is impossible at present even to guess whether Damuda beds occur along it or not. They are found on the north close to the Godavery, but they appear to be wanting in the hills a few miles further south. Some sandstones were seen near Ashrapetta which had the appearance of Barakars, but it should be repeated that after much experience of the two formations Barakar and Kambhi, I confess myself often unable to distinguish between the sandstones which usually form the bulk of both groups. I can only conclude that further examination of both boundaries, first geological and afterwards by boring, is requisite. This is especially a case in which research, to have any chance of success, must proceed on purely geological principles.

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Public Department.

PROCEEDINGS of the MARDAS GOVERNMENT.

Read the following letter from

the ~~Suplt. Geological Survey~~
of India dated 7th June
1871 No. 116.

Order thereon 5th July 1871 No. 77.

Communicated
to the Collectors of the
Godavery and Krishna
Districts, to Mr. Hunter,
and Colonel Applegate.
2. The Govt. trust that
Mr. Oldham may be able
to complete the examina-
tion of the tract of country
indicated, in the coming
working season, and
that he will keep them in-
formed of all results
that may be obtained.

[Handwritten initials and signatures]

[Handwritten signature]

To, The Collector of the Godavery District
Collector of the Krishna District
"Suplt. Geological Survey of India"
Dated 7th June 1871
Colonel F. Applegate
Revenue Department

Cont. of 1871 } **Numbers.**

Public

To
The Editor of the *Western* Bt.
for

Dated July 5. } 1871, No. 27.
Recd.

Nos. 24. 25.

Country

~~the further report of the~~

light. Geological survey

of all the localities

where coal may be found,

and requesting Mr. Allen

to keep the Enr. informed

of all results that may

be obtained on the examination

of the best of country in

selected in the report.

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5-7-71

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