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MADRAS RECORD OFFICE.

Government of Madras.

Public DEPARTMENT.

G.O. No.

855

Press

Mis.

Dated

16-6-

1877

Not to be folded or roughly handled

Read the following :—

No. 126. Memorandum on specimens collected by Colonel F. APPLEGATH in the vicinity of Juggiapettah near the Kistna river, and on his report thereon.

I am particularly well pleased that in this case the specimens have been forwarded which have been collected by Colonel Applegath, and numbered and catalogued by himself, inasmuch as the comparison of these will at once remove many doubts as to what rocks he has been referring when reporting previously in this and other districts. Knowing personally the localities referred to, I found it impossible to reconcile the statements made from time to time, such as the discovery of coal measure fossils, fossil plants, leaves, &c., with what we knew to be facts; but a very cursory comparison of these specimens with Colonel Applegath's list shows that he has been steadily using geological and mineralogical terms in a sense entirely different from that which these terms are ordinarily supposed to convey, and entirely opposed to the practice of every geologist.

For example, Colonel Applegath applies the term "quartzose conglomerate" to some of his rocks. I may, perhaps, be permitted to explain that the term "conglomerate" is applied to rocks largely made up of pebbles of other rocks, rounded and water-worn, and of various sizes, held together by finer material, from the nature of which the qualifying terms of "calcareous conglomerate," "quartzose conglomerate," &c., are derived. A conglomerate is, in brief, a consolidated gravel, and the term is utterly inapplicable to any rock which is not so made up of pebbles. By Colonel Applegath the name is used to describe vein quartz, pure silicious matter crystallized out in the veins or cracks of rocks, and here and there including within it angular fragments of the rock (in this case, a chloriteschist) in which the crack was found. It would be difficult to conceive two things which necessitate such a total difference in their origin and production, and, without the present opportunity of examining Colonel Applegath's specimens, the application of his descriptive terms never could have been known.

In a similar way, what is in the list called "carbonaceous shale" or "coal smut," is truly a dense sub-crystalline metamorphic clay slate of a dark-grey colour and well *cleaned*. It possesses neither the character of being carbonaceous nor shaley. The darker coloured and powdery portions said to be derived from this, and which have been burnt and sent up after being reduced to a clinker (not a cinder), are the not uncommon variety of a coarse kind of pseudo-graphite which occur along the cracks or faults in these rocks.

No portion of this so-called carbonaceous shale would support combustive for a moment. It can, of course, be burnt in a fire, and the result is the production of a vitreous clinker or slug; but, inasmuch as the rock could not possibly support combustive, it is strange to find it stated that it will be "found valuable for burning lime and bricks." It is to be regretted that, with the special desire for practical experiments which Colonel Applegath evinces, he did not try this before making the assertion I have quoted.

I think it unnecessary to go through the entire list of specimens submitted to me, and to point out, in detail, the errors in description. I may just refer to one or two. F is said to be "a grey slaty rock, something like an English flag-

16th June 1871.

stone," said to contain fossil markings, and it bears a resemblance to the shales of the Damuda series of the Raneeunge coal fields. I am quite unable to see this resemblance, although I am tolerably well acquainted with the Raneeunge field. Nor is there the remotest trace of anything organic in the rock. It is a greenish grey clay schist well cleaned. J is said to be "micaceous sand-stone," but even with the aid of a magnifying glass I can trace no mica. "M and C," again, are described as "conglomerate," but there is not a single pebble included in the mass. O are "variegated shales with fossils, supposed to be a fossil immediately above Indian coal." This is a variegated talc slate, with some layers of a coarser texture, not the remotest approach to anything fossil visible. T is also a white tulcore slate or schist, and has nothing even approximating to the character of an "aluminous shale," as it is called. U is a calcareous concretion in fine sandy-beds, not a "pebble;" while V is neither an iron-stone nor a fossil. The description given may possibly be a misprint—iron-stone (shells) instead of iron-stone shales, but this will not render the terms at all more applicable to the rock in question. There remain the specimens marked G with various numbers attached. These are said generally to "resemble the rocks which accompany the coal in India," and specially to be like those in the Bokaro and Ramghur fields. I am personally acquainted with all these fields, and I can state very positively that there is no such resemblance. I may add, too, that, although so stated, there is not a single fossil traceable in any one of these specimens. What has been, I presume, taken for these, is the dendritic markings of manganese, which have so frequently been taken for fossil plants (sea-weed), to which they bear much resemblance.

All these rocks, marked G, are in an altered and modified state. They have all been taken from a pit close to a very strong and well-marked dyke or wall of igneous rock, which had been forced into a crack in the rocks, and in contact with the intensely heated mass of which the beds of the rocks adjoining have been greatly modified, the result depending largely in its character on varying conditions of pressure, access of air, continuance of the heat, and the conductive power of the mass subjected to its influence. They present all the varied colours which would be seen in any mass of earthy matter or clay subjected to such intense burning, and these results have also been greatly modified by the presence or absence of calcareous matter in the masses. They are, therefore, altogether of a purely local and abnormal character, which does not extend more than a few feet, and which is useless as evidence of the general character of the masses.

The iron-stones D and L are *excellent* ores, long and most favourably known through the country. I am also asked to express an opinion as to the probability of coal being found in the places indicated by Colonel Applegath. I regret to say that there is not even the slightest indication of any evidence tending to show this. The rocks, of which specimens have been sent, are all, without exception, of varieties which belong to series of geological date, long prior to that which in India is known to contain coal. They are all of identically the same general character as others, which cover a very large area to the south of Juggiapettah, over which area the rocks are both highly contorted and well exposed, and where, therefore, any deposits of coal, which might be supposed to exist, could scarcely fail to be brought to light. The entire of this area has been examined carefully, and no

16th June 1871.

such indications of coal have been anywhere found; and I am, therefore, unwillingly obliged to declare my fullest conviction that there is not the slightest hope of finding coal in any one of the places referred to by Colonel Applegath. This is the opinion I formed after personal examination of the ground three years since, and everything which Colonel Applegath has sent up now confirms me in that opinion. If coal ever was raised there, that coal was, beyond a question, brought there from elsewhere, and so placed that it might be raised, a trick of by no means unfrequent occurrence, and illustrated by recent Indian experience as well as European.

No one can be more deeply impressed than myself with the vast importance of the question of the supply of coal in the southern parts of India, none more anxious to see a prospect of any such discovery of coal as Colonel Applegath so earnestly announces. But a due regard for truth compels me, at the same time, to say that all such trials as these, on which it is now my duty to report, are simply throwing away money and time, which might be usefully employed.

As was announced before, the Geological Survey of India have been steadily pushing forward their researches down the Godavery into the Madras Presidency, and up from the Kurnool and Cuddapah country to the Godavery. A reference to the sketch map, which accompanied our report "On the Coal resources and production of India," will show that the whole of that country is represented as "unknown geologically," and regarding which nothing, therefore, could be asserted. Although it has been quite impossible to complete a detailed examination of this country, this season has enabled us to make a preliminary reconnoissance of the greater portion of it. And I am very happy to be able to announce to the Government of Madras that, although no coal has actually been *seen*, still the rocks which overlie and accompany coal more to the North (Chanda, &c.) extend irregularly down the valley of the Godavery, covering a considerable area in His Highness the Nizam's dominions, and extending also into the Madras Presidency, where they come so far south as within about seven or eight miles of Ellore and across from that to the Godavery. Coal has been proved by boring near Buddrachellum, about one-quarter of a mile from the river bank on the British side. Coal is known to occur in the Nizam's territory in several places (as at Allapully, a village which will be seen near the North-West of Sheet 94 of the Indian Atlas). This will, I presume, be proved by His Highness the Nizam's Government. There is, therefore, a chance of coal being found in workable quantity in this portion of the Madras Presidency, although near to the boundary.

With regard to the further proving of this, I am quite satisfied that more time would be lost than gained by any present or premature commencement of borings before the ground is carefully examined. This cannot now be done this season, as the rains are close at hand; but it will be taken in hand next season, and the Government of Madras shall be kept informed of the progress of the inquiry should there appear to be any more special grounds for a hope of finding coal than our present information affords.

(Signed) T. OLDHAM,
Supt., Geological Survey of India.

CALCUTTA, 12th May 1871.

Proceedings of the Madras Government, Public Department,

16th June 1871.

No. 2,642.

Copy forwarded to the Government of Madras for information, with reference to letter thence, No. 337, dated the 15th March last.

(By order of the Governor-General of India in Council.)

HOME DEPARTMENT, PUBLIC, (Signed) J. GEOGHEGAN,
SIMLA, 31st May 1871. *Under Secy. to the Govt. of India.*

No. 127.

ORDER THEREON, 16th June 1871, No. 855.

Ordered to be communicated to Colonel Applegath and Dr. Hunter.

(True Extract.)

W. HUDLESTON,
Acting Chief Secretary.

To Colonel F. Applegath.

To the Director of Public Instruction.

„ Revenue Department.

„ Collector of the Godavery District.

„ Collector of the Kistna District.

Exd. A. S. Rodgers.

Govt. of Madras.

PUBLIC.

To

COLONEL F. APPELGATH,
&c., &c., &c.

Dated June, 16th.

Recd.

Encl.

G. O., 16th June 1871, No. 855.

JUNE.

Nos. 126-127.

Directing that the Report of the Superintendent Geological Survey of India, on the specimens of coal forwarded by Colonel F. Applegath, be communicated to that Officer and Dr. Hunter.

Memorandum on Specimens collected by COLONEL F. APPELGATH, in the vicinity of Juggiapettah near the Kistna River, and on his report thereon.

I AM particularly well pleased that in this case the specimens have been forwarded which have been collected by Colonel Applegath, and numbered and catalogued by himself, inasmuch as the comparison of these will at once remove many doubts as to what rocks he has been referring when reporting previously in this and other Districts. Knowing personally the localities referred to, I found it impossible to reconcile the statements made from time to time, such as the discovery of coal measure fossils, fossil plants, leaves, &c., with what we knew to be facts; but a very cursory comparison of these specimens with Colonel Applegath's list shows that he has been steadily using geological and minerplogical terms in a sense entirely different from that which these terms are ordinarily supposed to convey, and entirely opposed to the practice of every geologist.

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GEOLOGICAL SURVEY OFFICE,

CALCUTTA.

The 12th May 1871.

T. OLDHAM,

Superintendent, Geological Survey of India.

No. 2042.

Copy forwarded to the Government of Madras for information, with reference to letter thence, No. 337, dated the 15th March last.

By Order of the Governor General of India in Council,

HOME DEPARTMENT,

PUBLIC,

Simla, the 3/ May 1871.

Under Secy. to the Govt. of India.

P.L. May 15th Monday 1871 No 34-4

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12/15

126-127

Public: 1871, 1872-4

June

June day, 1871, 1872-4

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16 June 1871 No 855.

Adm. & the Council
of Col. Applegate &
Printer.

L. J.

Should be laid
on the table

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To the Col. & Applegate
Dr. P. H. H. H. H.
Receives of the
Collector of the
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Editor of the

1871

Court. of 1871 Madras.

Public

To Lieut. Col. J. Applegarth

Dated June 16.

Recd.

Encl.

G. O. 10 June 1871, No. 100

Nos. 127.

Directing that the Report of the
Geol. Geological Survey of
India, on the Specimens of
Coal forwarded by Col. J.
Applegarth be communicated.
To Lieut. Col. J. Applegarth & Mr. Hunter.