M R. O. 1—39,000—16-10-29.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 963 Press ~~Mis.~~

193-196

Dated 8th April 1969

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
8th April 1869.

Read the following papers :—

No. 193. Proceedings of the Board of Revenue, dated 23rd February 1869, No. 1,203.

Read the following letter from the Collector of Bellary, to the Acting Secretary to the Board of Revenue, dated 9th February 1869, No. 24.

As the rain-fall in many parts of this district during the north-east monsoon was below the average, I anticipate a scarcity of water for domestic purposes during the approaching dry season. It has, in fact, fallen very low in many wells already. Under these circumstances, I should be glad if the Board would supply me with a few tube wells, fitted with pumps, and a driving apparatus. In the vicinity of most villages there is a nullah which catches the drainage of the surrounding country, and when water fails in the wells, it is generally obtained by scooping out the sand in these localities, but in such small quantities that it takes half an hour to fill an ordinary chatty. A tube well would there yield a copious supply.

2. I observe that the report of the Executive Engineer to the Municipality of Madras on the subject of these wells (a copy was obligingly furnished to me by the President) contains the following remarks :—

" The only inconvenience felt at these trials was the quantity of sand brought " up with the water, and the consequent rapid wearing away of the leather washer. " From the description of a trial with these tubes in the bag-shot sand, I find that " Mr. Norton has provided against this contingency by enclosing within the perfo- " rated portion of this tube an inner tube also perforated, the annular space " between the two being filled with a coil of wire gauze. A filter of this descrip- " tion is necessary to establish the successful working of these wells in a sandy soil." If the Board see fit to comply with my request, I would suggest this addition being made to two or three of them at the Government Workshops.

The Board regret that there are no wells available for experiment in Bellary, and they understand that Messrs. Parry & Co. have none on hand. They have recommended Government to procure 100 from England ; but as these cannot be received for several months, and the wants of Bellary are urgent, they resolve to request the permission of Government to purchase a few sets from Messrs. Parry & Co., if their expected supply should intermediately arrive.

No. 194. Proceedings of the Board of Revenue, dated 23rd February 1869, No. 1,206.

Read the following papers :—

Proceedings of the Madras Government, dated 12th February 1869, No. 362, Revenue Department.

Abstract.—*Norton's Tube Wells.*—Report of their trial at the Sydapet Farm, communicated to Revenue Board. Future reports to be addressed to the Board of Revenue.

Proceedings of the Madras Government, dated 12th February 1869, No. 363, Revenue Department.

ABSTRACT.—*Mr. Clarke's tour in Cuddapah District.*—Despatch from Home Government reviewing the report, and approving the measures of relief sanctioned, communicated to Revenue Board.

From the President of the Municipal Commission, to the Acting Secretary to the Board of Revenue, dated Madras, 23rd January 1869, No. 47.

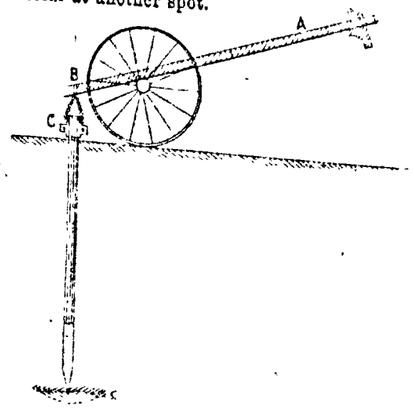
ADVERTING to your circular letter of the 9th instant, I have the honor, agreeably to Government Order, dated 18th August 1868, No. 2,195, to forward, enclosed, the report of the result of the experiments with Norton's Tube Wells.

ENCLOSURE No. 1.

From the Executive Engineer, to the President of the Municipal Commission, Madras, date Madras, 22nd January 1869, No. 86.

AGREEABLY to the instruction contained in Government Order, dated 18th August 1868, No. 2,195, I have the honor to report the result of the experiments with Norton's Tube Wells in the People's Park.

2. The first tube was driven close to a tank. After sinking it eight feet the plummet was introduced, and when withdrawn was found to be moist. The driving was continued until the tube had obtained a depth of eleven feet, when the test indicated three feet of water. The pump was then screwed on, and after a few minutes' working, tolerably clear water issued from the spout with large quantities of clean white sand. About thirty gallons of water was pumped up on this occasion. The next morning the first few strokes of the pump lever brought up dirty water and sand; but as the pumping proceeded, a continuous stream of increasing purity was obtained, which was found to be warmer than the water in the tank ten feet off. The quality was the same as that of the tank; slightly brackish; but the women that came to draw water, induced probably from the novelty, preferred to take their supply from the well. This was withdrawn a few days after for trial at another spot.



3. The process adopted for drawing up the tube being far more expeditious than that given in the "directions," and readily available to every traveller, I shall describe it, as it may be of service to users of this valuable invention. A common bullock-cart was used for the purpose, and answered admirably. The pole was fifteen feet long, and was so attached to the axle as to have three feet on one side, and twelve on the other. To the shorter arm B. was lashed a rope which was properly secured to the clasp C, fastened to the tube a few inches from the ground. Two men were put to pull down the lever A. and succeeded in drawing out the tube with ease.

4. The soil in which this experiment was conducted consisted of an upper crust of three feet of clay and the remainder sand; at first, coarse and colored, but getting finer and whiter the farther from the surface.

5. This tube was then sunk and withdrawn successively from several places all over the Park and at various depths, with the view of ascertaining whether a sweet water spring existed anywhere on the grounds. As nothing particular was elicited by these trials, I shall not describe them, but pass on to the last.

6. This experiment was undertaken for the purpose of ascertaining the quality of the yield of each stratum up to a depth of thirty-five feet.

7. At twelve feet the flow was copious, but the water of the same quality as at former trials; at twenty-six feet there was scarcely any taste of saline matter, but the water was cloudy, and the pump often ceased to draw. It was therefore inferred that the perforated end had penetrated into clay, and the driving was continued.

8. At thirty-five feet, or four pipes' length, there was no yield at all. Water was poured into the pipe and the pump set to work repeatedly; but after discharging nearly the quantity supplied, it ceased to act. This can be easily accounted for. A suction pump cannot sustain a column of water greater than thirty feet, the weight of such a column being nearly in equilibrium with atmospheric pressure, and immediately the water fell below that level the pump was ineffective.

9. If the spiked end, however, tapped a water bearing stratum at a greater depth than thirty feet, but so charged with water as to rise in the tube higher than the stratum itself, the pump would act perfectly. As a rule, however, its usefulness is limited to a depth of about thirty feet.

10. In the instance of failure noted above, if the water had been sent down the tube under pressure, it is possible that a way to the spring might have been forced; but as a force-pump was not conveniently available, and as it was expected that the tube had penetrated deep into the soft black clay, which underlies the sand nearly everywhere in Madras, it was drawn up to the surface.

11. The only inconvenience felt at these trials is, the quantity of sand brought up with the water, and the consequent rapid wearing away of the leather washer. From the description of a trial with these tubes in the bag-shot sand, I find that Mr. Norton has provided againt this contingency, "by enclosing within the perforated portion of his tube an inner tube, also perforated, the annular space between the two being filled in with a coil of wire gauze." A filter of this description is necessary to establish the successful working of these wells in a sandy soil.

12. The greatest advantage, perhaps, attending their introduction, is where a contaminated spring is met with at a small depth from the surface, and a pure one deeper down. The tube well by fitting closely to the soil (which it compresses around it on its way down), and being impervious at every point but at the perforations, it effectually excludes all extraneous water from the source of supply, which is thus kept pure and wholesome.

13. If I might here be permitted to introduce a subject foreign to the object of this report, I would beg respectfully to observe that this contrivance would be invaluable in feverish localities, where gangs of work-people are employed in opening out ghaut-roads or other public works.

14. The popular impression among the natives is that the germs of the disease is contained in water found in the surface springs of hill torrents, which receive the poison by infiltration through the roots of jungle vegetation. Norton's Tube sunk thirty feet deep would probably tap a spring entirely free from contamination.

From the Acting Commissioner of Police, to the Acting Secretary to the Board of Revenue, dated 29th January 1869, No. 1,094.

WITH reference to your No. 95, of the 9th instant, calling for a report on the result of experiment with Norton's Tube Wells, I have the honor to state that the tubes were driven down at the western end of the Penitentiary by the means of a patent monkey without difficulty. The water was come to at the depth of eleven feet. The pump was then screwed on to the rim of the tube and set to work. At first the water did not readily flow owing to the perforated holes in the tube becoming choked with sand; the rim of the pump soon after broke when pumping.

2. The rim of the pump being made of cast iron is very brittle and is easily broken; but if made of wrought iron this would not be the case, and I would therefore recommend its being so made.

3. I forward the Keeper's report on the experiment.

4. The pump has since been forwarded to the Public Works Department to be repaired.

ENCLOSURE No. 1.

From Mr. J. BENNET, Acting Keeper of the Penitentiary, to the Acting Commissioner of Police and Superintendent of Jails, dated Madras, 27th January 1869.

WITH reference to letter No. 95, of the 9th instant, from the Board of Revenue, I beg to report that my experiment with Norton's Tube Wells have proved successful, but beg to suggest that a *wrought iron* rim be substituted for the cast iron, as I found the latter broke in working.

IN their Order of the 18th August, No. 2,195, Government directed that three sets of tubes should be forwarded to the Farm Committee, and two to the Superintendent, People's Park, for experiment, and this was accordingly done.

2. On the 17th of September, the Board forwarded a set of the tubes to the Commissioner of Police for experiment at the Penitentiary, and in their Order of the 28th September, Government approved of this.

3. On the 6th November, three sets were directed to be forwarded to the Superintending Engineer, 5th Division, for trial at Bangalore.

4. Owing to the breakage of the driving apparatus, some delay occurred in supplying the Superintending Engineer, and his report on the experiment has not yet been received.

5. The Board, however, now proceed to review the reports received regarding the experiments at the Farm, People's Park, and Penitentiary.

6. The report of the Secretary to the Farm Committee shows that the experiment there was a total failure, and that both driving apparatus and tubes were injured, so that the working would have been brought to a stand-still had not exceptional facilities for repairing damages been at hand.

7. From Mr. Blair's report it appears that the tubes were driven in hard ground, and that the upper pulleys were broken, probably by pulling up the monkey with a jerk. This would indicate unskilful use; but the accident is one that would be very likely to occur in the hands of natives.

8. It will be observed that the experiment was continued at the Farm by the Engineer of the Patentee's with his own driving apparatus, that rocks were met with, the tubes bent, and the attempt admitted to be a failure.

9. Captain Tennant's report from the Penitentiary shows that no difficulty was there met with in driving the tubes, the water being arrived at the comparatively easy distance of eleven feet.

10. At first the water did not readily flow owing to the perforated holes in the tube becoming choked with sand, and the rim of the pump soon after broke when pumping. This breakage Captain Tennant attributes to the fact of the rims being of cast iron, and if so, the defect is common to all the pumps.

11. The wells tried in the People's Park appear to have been more successful. Water was here reached at only eight feet, and after a few minutes' working tolerably clear water issued from the spout with large quantities of sand. On this first occasion thirty gallons of water was pumped up.

12. Next morning dirty water was at first produced, but this gave place to a continuous stream of water of increasing purity.

13. The tube was subsequently sunk and withdrawn in several places with the view of ascertaining whether a sweet water spring existed; in one case the experiment being made at various depths to ascertain the quality of the water contained in the various strata.

14. From the Executive Engineer's report of this experiment it appears that it revealed the fact that at twenty-six feet the water had lost the saline taste which characterised it at twelve feet, and that the yield only ceased entirely at thirty feet. Mr. Lee has pointed out an ingenious method by which the tubes may be withdrawn by means of an ordinary country cart.

15. The only inconvenience felt in these trials was the rapid wearing away of the leather washers owing to the quantity of sand brought up with the water. This, as pointed out by Mr. Lee, would probably be obviated by the use of the filters, none of which have been furnished.

16. In the opinion of the Board the result of the experiment has been to show that in certain soils, namely, where rocks and stones are not met with, and where water can be reached at a depth not exceeding twenty-five feet, the wells are most valuable especially for the purpose of indicating where good water is to be found.

17. It is also probable that, as suggested by Mr. Lee, they will prove valuable in obtaining a wholesome supply of water when the surface springs are contaminated by sewage or malarious vegetable deposit.

18. Many Collectors have applied for the wells, and the Board are of opinion that it would be well to procure 100 sets of tubes with sand filters, 100 pumps with spare washers, and 20 sets of the driving apparatus.

19. Experiments could then be carried out on a large scale, tubes being sent out in sets of five with a set of driving apparatus.

20. The Board are of opinion that these tubes are too small for agricultural purposes, and would suggest that if the larger size have been found to answer in England a few sets should be furnished.

21. In their Order of the 13th January 1869, Government directed that the Board should endeavour to have some sets of driving apparatus made up, and they have accordingly requested the Superintendent of the Public Works Stores to make up three sets.

22. These, when ready, will be forwarded to the Collector of Godavery, together with such of the sets of tubes as are available.

No. 195. From the Acting Secretary to the Board of Revenue, to the Acting Secretary to Government, Revenue Department, Fort Saint George, dated Madras, 10th March 1869.

I AM directed to state, in continuation of the Board's Proceedings, dated 23rd February 1869, No. 1,206, that it has recently been brought to the knowledge of the Board, by the Secretary to the Government Farm Committee, that an alteration has been introduced by Mr. Norton, by which his Tube Wells are adapted for raising water from depths ranging from 30 to 120 feet, whereas those forwarded for experiment, as already noticed, stopped action at 30 feet.

2. I am directed to suggest that, among those now ordered, some of the improved pattern may be included.

Proceedings of the Madras Government, Revenue Department, 8th April 1869.

From the Honorary Secretary, Government Farm, to the Acting Secretary to the Board of Revenue, dated 1st March 1869, No. 129.

I HAVE the honor to acknowledge receipt of the Board's Proceedings of February 23, 1869, No. 1,206, on the subject of Norton's uTbe Wells.

2. With reference thereto, I beg to forward, for the Board's information and consideration, a letter from Mr. Norton to the Editor of the *Australasian*, the best paper in Australia, and an editorial thereon.

3. The letter shows that the tube wells have been improved by Mr. Norton, and that water can be raised by them from a depth of 120 feet. If it can be raised from that depth, there is no practical reason, as the Editor says, why the wells should not raise water from double that depth.

4. As in paragraphs 18, 19, and 20 the Board recommend that Government should order 100 tubes, etc., and carry out experiments, I have thought best to bring the improvements already made to notice.

5. It is possible the Patentee's Agents, Messrs. Parry & Co., may be able to give further information regarding the improved tubes, etc.

No. 196. ORDER THEREON, 8th April 1869, No. 963.

Miscellaneous.

THE Government are glad to observe that the experiments made with Norton's Tube Wells have been upon the whole successful.

2. As recommended by the Board of Revenue application will be made to the Home Government for 100 sets of tubes, with sand filters, 100 pumps and spare washers, and 20 sets of the driving apparatus. It will also be suggested that half the number of pumps sent may be of the larger size.

3. As desired in their Proceedings, dated 23rd February 1869, No. 1,203, the Board are authorised to purchase a few pumps (not in excess of ten) from Messrs. Parry & Co., Mr. Norton's Agents in Madras, should their supply reach them before the arrival of those now applied for to the Home Government.

(True Extract.)

(Signed) R. A. DALYELL,
Acting Secretary to Government.

To the Board of Revenue.
,, the Accountant-General.

Exd. F. R. Bantleman.

Re Australasian
Jan 23rd 1869.
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THE YEOMAN.

FORTHCOMING AGRICULTURAL SHOWS.

The secretaries of the various Agricultural Societies are requested to forward to the editor of "The Australasian" the dates upon which their respective exhibitions will be held.

March 23 and 24.—National Grain Show at Sandhurst.

LAND SALES.

Crown land sales in fee-simple will be held at the undermentioned places and dates, namely :—

	No. of "Gazette" of 1868.
Beechworth—Tuesday, January 26	.. 150
Hamilton—Monday, January 25	.. 150
Melbourne—Friday, January 22	.. 149
Melbourne—Tuesday, January 26	.. 149
	1869.
Melbourne—Friday, February 5	.. 1
Melbourne—Friday, February 12	.. 3

THE FARM AND STATION.

TUBE WELLS.

We have not heard as yet of many experiments with the tube well in Australia, although this is just the sort of season in which they ought to be most valuable. Sinking wells in the ordinary manner, with pick, shovel, and windlass, is slow and expensive work. Still, even by these means flocks of sheep have been saved in parts of the interior, where the long continuance of drought had caused the failure of all supplies of surface water. The great level parched-up clay plains have a most unpromising appearance; but when a search becomes unavoidable, it is surprising how readily water is sometimes to be reached on them. This bed or stratum of clay, which becomes so dusty and bare of vegetation after a few months of hot weather, looking as if there was not a particle of moisture near either above or below ground, is in few places very thick, that is to say, more than from 20ft. to 100ft. or so, and beneath this there are usually to be found springs, more or less strong. Under the plains between the mountains and the sea are to be found the latter, mostly true artesian springs, while under the great plains of the interior water has been found everywhere, though not in equal abundance, nor always of similarly good quality. It was long supposed that under such a wide-spread tract of clay country there could be no water; but there this is found, although doubtless coming a long distance, from different mountainous tracts of more pervious soil. And the clay that so hopelessly prevents the admission of moisture acts, in fact, as a preservative, preventing the least evaporation of what once gets beneath it. Therefore, let no one be disheartened by unpromising superficial appearances, for water is almost invariably to be found with greater certainty and at a less depth in the clay than in a more broken country. In the latter the object may be gained or it may not, but in the former there is great uniformity, and when the experiment has once been made and water reached, the probabilities are that it will be found under nearly similar circumstances over a wide extent of the same plain.

Water, then, having been found to exist in sufficient abundance under the country worst supplied with it on the surface by nature, and where no impediments of rock are to be feared, it would have been supposed that the tube well would be in great demand for prosecuting the search. The belief that water could only be raised about thirty feet, or as high as a suction pump would draw it, rendered many doubtful as to the utility of the invention here; but this difficulty has been long since overcome, as explained by Mr. Norton himself in a letter which appeared a couple of weeks back. For increased depths, the tubes are so made as to allow of the pump bucket descending to within about twenty-five feet of the top of the desired; but, although the emergency has come upon us, we will not avail ourselves as we should do of the means, even though these or nearly similar, were devised years ago, both in New South Wales and South Australia. However, the question is not now about priority of invention, but as to the suitability of the tube well for bringing water to the surface quickly and cheaply where it is sadly needed; and to effect this, its advantages are manifestly great. Compared with the open well, when any depth has to be reached, the saving in money will be perhaps 19s. out of the pound, and in time twenty-nine days out of the month of medium length, or 360 days out of the year.

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"Prices under these circumstances, have received a slight impetus, and may in the average be quoted ½d. to 1d. higher than in September. Good combing wools fare best; they are comparatively scarce, and the number of competitors is unusually large. Scoured Sydneys are hardly dearer than in September, but the low faulty sorts, at 11d. to 1s, show a slight improvement, or, at any rate, do not sell so irregularly as at the late series. With Capes the rise is small, and may be said to be almost confined to the snow-white sorts, which sell ½d. and sometimes 1d. dearer than in September. Fleece and greasy descriptions, on the other hand, do

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Lord Advocate of Scotland, Lord Moncrieff; Chancellor of Ireland, Mr. O'Hagan (Judge of the Common Pleas); Chancellor of the Duchy of Lancaster, Lord Dufferin; Secretary of the Council of Education, Mr. Forster; Third Lord of the Treasury, Mr. Stansfield; Under-Secretary for Foreign Affairs, Mr. Otway; Under-Secretary for War, Lord Northbrook; Secretary of the Poor Law Board, Sir Robert Peel; Secretaries of the Board of Trade, Messrs. Lefevre and Peel; Judge Advocate, Sir Colman O'Loghlen.

Earl Russell is a member of the Cabinet, without office.

Parliament was opened on the 10th December. Mr. Denison was re-elected Speaker. He intimated that the Queen's speech would be delivered on the 15th.

The Ministry was completed on the 14th inst. Next day the vacancies consequent upon the change of Ministry were announced.

The *Morning Post* contradicts a widespread rumour that the Government had decided to recall the Earl of Mayo, and appoint the Marquis of Salisbury to the Governor-Generalship of India.

The Duke of Cambridge has appointed a committee to inquire into the equipment of the Field Artillery in India.

The Queen has ordered medals to be distributed to the troops that were engaged in the Abyssinian war.

The Government has granted £5,000 to Mr. Rassam, and £2,000 each to Lieut. Prideaux and Dr. Blanc.

Latest advices from Spain state that the elections have commenced, and tranquillity prevails. The Cortes will meet in January.

The Gossamer, for Adelaide, has been wrecked off the coast of Devonshire. The captain and his wife and eleven of the crew were drowned. Geo. Sale, a passenger, was saved. A verdict of manslaughter has been given against the pilot.

On the 28th of November it was reported that a rising of Republicans in Cadiz had taken place. They had erected barricades. The troops were called out, and the fleet anchored before the town. Ultimately an armistice was granted to the insurgents, to enable them to

The Australasian
Melbourne
Australia

Jan. 2, 1869.

NORTON'S TUBE WELLS.

TO THE EDITOR OF THE AUSTRALASIAN.

Sir,—In your impression of the 15th August reference is made to my patent tube wells by a correspondent writing from Leichardt. Several of his remarks are deserving attention, but, like many others, he has fallen into the common error in supposing that my patent tube wells are only adapted for shallow wells, not exceeding thirty feet. That such is not the case is well known here in England, and it may therefore be of some interest to your readers to know that I have made within the last six months some fifty odd wells, ranging in depth from forty feet to 120ft.

The plan I have patented for raising water from these depths is simple in the extreme. In these cases the tube has been made of a sufficient size to admit the pump bucket being passed down. A short length of the tube (the position of which is not more than twenty-five feet from the first or pointed length) is prepared to receive a valve which will pass readily down the upper portion of the tube well, and can be firmly wedged into its proper position in the short length of tube before mentioned, which is slightly tapered at its lower extremity, in order to answer the required end. The pump bucket is next lowered by thin rods, until it reaches the lower valve. This bucket passes readily down the tube until it comes within a few inches of the lower valve, and here it fits sufficiently tight to allow its working up and down, lifting the water; in a few words, the tube itself becomes the pump barrel. Frequently when a tube has been driven forty feet or fifty feet deep, the water will rise of its own accord from ten feet to fifteen feet; in other cases it is sometimes expedient just to dig down a few feet and connect the working barrel of a pump within lifting reach of the water. Another most important feature in connexion with these wells is a tube I have patented, which effectually keeps back every particle of sand, by which I am enabled to make excellent wells in quicksands of the worst nature, and in many cases where it would be impossible to make a well on any other known principle.

Trusting you will favour me by inserting this short explanation.—I am, yours, &c.,

J. L. NORTON.

38 Belle Sauvage-yard, Ludgate-hill, E.C.,
London, Oct. 20.

...ION.
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...ifesting themselves are referred to as being
...ound in Afghanistan, where they are called
Kahoomi. Clos de Lom, writing between
1572 and 1580 A.D., says, "The Indians of
Peru boil, and with hers, great waste for
drawing off the water, and making it dra
through written charcoals. Amusement at last
changed that I have stopped over one of those
charcoals, and before we had finished pitching
the last the channel was dry, the water having
been drawn off in another direction, for it is
in the power of the Indians to do this at their
pleasure." Markham, referring to these works
of the Incas of Peru, states, "Travellers are
still among the whole length of the route, be-
coming immense at the upper end, and pene-
trating into the rocks until they come in
contact with underground springs. They are
arched over but in height, with the floor, sides,
and roof lined with stone, and are round
barrels. At intervals of 30 yards there are
open holes in the main tunnel."

Somewhat similar works are also referred to
in Lord Strutt's *Indian Irrigation*, under the
designation of "Fantouch," as existing
throughout the irrigating districts of Tod-
mant.

THE NATURALIST.

THE PLAGUE OF INSECTS.

The Insect Exhibition which was held
in Paris has led to the formation of an
Agricultural Entomological Society. The
objects of this society are the preservation of
useful insects and the destruction of noxious
ones. The statement issued by the latter is
more than ever upon the means of destroying
insects, though it is not always an unmixed
agreement, as in the case of the introduction of the
Plant of Sodom in Algeria, in 1865 and 1866,
when the prickly shrub so choked twenty miles
of ground, and forms means to turn in cattle, was
overcome by burning in dry hours, and every
portion of vegetation destroyed. The eggs of
insects, some of which are small as to be
invisible to the naked eye, are also thus
destroyed as fast produced. The year on
examining specimens of grain and other foods
has been discovered, and it is not an unusual
circumstance for the greater part of a load of
wheat, rice, or maize to be eaten away by
Ephemera, for instance, it was computed that
in 1866 a third of the corn crop was destroyed
by the caterpillars. Not are the ravages of
insects confined to plants, the most terrible
diseases have been discovered by insects that
have attacked to be parasitic, or even par-

Revenue Department

No. 963.

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 8th April 1869.

Read the following letter from the Sec^y to the Govt of India

suggesting that some of the Northern Talookdars may be included on those to be ordered from England

(P.C. 25th Feb^y/69 and P.C. 10th March 1869 Nos 1203 & 1206)

The Govt are glad to observe that the experiments made with Northern Talookdars have been upon the whole successful.

2. As recommended by the Govt of India application will be made to the Home Govt for the sale of timber with sand pillars, iron posts and spare timbers, and as sale of the driving apparatus it will also be applied that half the number of pumps sent may be of the improved pattern for raising water from a greater