M.R.O. 1—77,006—8-6-37.

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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 3644-45 Press / Mis.

326-328

Dated 15 — 11 — 1866.

Not to be folded or roughly handled

No. 326. Read the following Endorsement of the Consulting Engineer for Railways, dated Ma 30th October 1866, No. 423:—

Read the following letter from the Acting Agent and Manager of the Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 24th October 1866, No. 527.

1. Referring to Proceedings Madras Government, Public Works Department, dated 9th October 1865, on the subject of the preparation of timber by Boucherie's process, further experience, and the conclusion at which the Officers of this Company have ultimately arrived, will doubtless be interesting to you and the departments to which the above Proceedings were communicated.

2. In consequence of the unfavorable reports received from the Engineers, Messrs. Carter and Wilkinson were instructed, in the early part of this year, to collect evidence and report on the results of the Boucherie process. In reference to the liability of the impregnated woods to the attacks of worms, they state, under date of 23rd February 1866,

"In Palghaut Yard, where the greatest number of pickled sleepers are stacked, "the woods which appear to be most injured are Unnacarry (Odina Woodiar) and "Thawnee (Terminalia Belerica). Sleepers of these woods are bored to such an "extent as, in many cases, to render them unfit for use. The insect is a Coleopter- "ous one, and is said to belong to the genus Apate (Farbricius) and family Bostri- "cida.

"This beetle bores into the wood to the depth of about one and a half inches, "and lays its eggs in the hole. After the eggs become larvæ, the principal damage "seems to commence, as the larvæ bore in all directions inside, and continue to "feed on the wood until they are developed into perfect insects.

"Finding that a very general opinion prevails amongst the Natives that all "woods cut between the third and twelfth day after new moon are liable to the "attacks of insects (which opinion is noted by Dr. Cleghorn), we had trees of the "woods most liable to the attacks of the insects cut near the depôt of Topanaud "on the fifth day after new moon, parts of these trees we have had pickled, and "parts left unpickled, and we intend to place them where the insects abound. "Some time must elapse before we can report the results.

"It was reported to us that the larvæ of some insects were frequently driven "out of some woods during pickling; none, however, were seen by us in the four "sorts of timber we experimented on; it is Mr. Carter's opinion (who on one "occasion saw these larvæ) that they are the larvæ of saw flies, whose attacks are "principally confined to the bark.

"The fact of pickled sleepers being destroyed by insects is so important, that "we consider it necessary to recommend that the contractors be prohibited from "pickling Unnacarry and Thawnee for the present. The time and attention neces- "sary to go thoroughly into the subject renders it impossible that we can now let "you have an exhaustive report. We are experimenting on several woods under "various conditions, and the results will be duly communicated. In the course "of our enquiries we have found that several of the woods selected for sleepers "are badly split. Mr. Wilkinson herewith encloses a list showing the number of

" sleepers, attacked by insects and split, out of the total number sent in to Paul-
" ghaut. We believe that a careful revision of the woods now being used for
" sleepers will have to be made, as we fear several of them will be found unsuitable
" for the requirements of the Railway."

3. On the 3rd September they write in continuation :—

" We examined the sleepers which were pickled in our presence and after-
" wards put down in Paulghaut Yard; the woods were those most liable to be
" attacked by the boring beetles (see Appendix No. 1), and were in good condi-
" tion after having been in the line for three months; the unpickled portion of the
" same (unburied) were attacked by the insects.

" We also had a large number of the pickled sleepers which were previously,
" whilst stacked in Paulghaut Yard, bored by insects, buried; on examining these,
" we found in every instance that the larvæ had died, the sleepers generally were
" in fair condition (see Appendix No. 2).

" We may, therefore, assume that pickled sleepers buried soon after being cut
" are not liable to the attacks of insects, and that if only slightly attacked, when
" buried, the insects die."

4. As regards the effect of the process itself on the timber, they state that having given the matter the most careful consideration, and examined specimens of all the woods in use, both in their natural and pickled state, the conclusion at which they have arrived is, that the strength of the timber and its durability are rather lessened than increased. The tendency of the woods to split under the influence of the sun is said to be much greater in the pickled than in the natural state, and the theory on which this is attempted to be explained is as follows :—

" We believe that this is caused by the water of the solution being more
" quickly evaporated than the water in the sap would be, as the latter is in chemical
" combination with various alkaloids and acids, whilst the former is a solution
" only."

" The result is that the sleepers become prematurely and unnaturally seasoned,
" and as the woods generally, if unprepared, would not be suitable for sleepers,
" when dried up, they appear useless; most of them seem as if they would not
" hold a trenail, and as we are now using iron trenails, they would be more likely
" to become loose than even wooden ones."

5. On a recent occasion, when I had an opportunity of conversing with Mr. Carter on this subject, he told me that some of the pickled sleepers were so worthless (in consequence apparently of complete desication) that they broke in pieces like a carrot when thrown out of a wagon. The process has been abandoned, and we are about to revert to the use of the old sanctioned woods.

6. In connection with this subject, and with reference to the information you were so good as to communicate to me in respect to the breakage of pot sleepers on the East Indian Railway, I may mention that Mr. Pinson, Acting Chief Engineer, has just furnished me with his Quarterly Report, from which I find that between Madras and the Shevaroy Hill Station (1st and 2nd Divisions) a distance, including sidings, of 211 miles, the number of pots removed during the quarter amounted to 245. The number of pots in the road is 6,18,310, and we commenced laying

Proceedings of the Madras Government, Public Works Department,
15th November 1866.

them down in the beginning of 1861. I think the very large breakage on the East Indian Railway is to be accounted for; first, by the use of timber sleepers at the joints, and secondly, by the description of ballast used.

7. A mixed road (*i. e.*, a combination of iron with wood sleepers) is invariably bad. About two years ago I was very short of fish plates for the permanent way of the North-West Line, and to save time, I used wood sleepers at the joints with double chairs. The Engineers found it impossible to keep a good road, the wood and the iron offering unequal resistance to the passing load. I was obliged to remove the timber sleepers at the joints as soon as fish plates could be procured.

8. As regards the ballast, kunkur is quite unsuited to iron sleepers, it is much too hard and too liable to bind. A friable substance like sand, fine gravel or Morumboo, is indispensably necessary to secure a smooth road, and to prevent breakage. I believe that the greater number of the sleepers found broken in our line have been cracked in shipment or unloading from wagons, as there are evidences, in nearly all that are removed, of slight flaws or cracks of old standing. Further than this we are in the habit of using up the cracked, but serviceable sleepers, in sidings and lay-byes, and I have no doubt some of these which have become useless are included in Mr. Pinson's return.

APPENDIX No. 1.

Sleepers buried in Paulghaut yard immediately after being pickled.

No. in List.	Botanical Name.	Local Name.	Condition.	Remarks.
11	Terminalia Chebula ...	Pillaymurdoo ...	Good.	These sleepers were examined after having been in the line for three months.
14	Odina Woodiar	Unnacarry	Do.	
31	Terminalia Belerica ...	Thawnee	Do.	
89	Bambax Malabaricum ...	Poolee	Do.	

(True Copy.)

(Signed) W. G. SMART,
Acting Agent and Manager.

(Signed) H. R. P. CARTER,
Resident Engineer, 3rd Division.

(Signed) A. T. WILKINSON,
Resident Engineer, 4th Division.

APPENDIX No. 2.

Sleepers partially attacked by insects buried in Paulghaut yard, and examined after four months.

No. in List.	Botanical Name.	Local Name.	Condition.	Remarks.
	First Class.			
1	...	Erembogum	Good.	
2	Terminalia Glabra ...	Kurramurdoo ...	Do.	Fit for sleepers without pickling.
3	Bridelia Spinosa	Kinee, also called Mooloovenga.	Do.	Dark colored, hard, and durable, (Roxburgh)
4	Shlüchera trijuga... ...	Poovum	Do.	Red. strong, hard wood, (Ainslie.)
6	Eugenia Jambolana ...	Cooty Nawel... ...	Do.	Fine, hard and close grained, (Roxburgh.)
8	Diospyros Cardifolia ...	Vuekanay	Do.	Hard, heavy wood, strong, (Wight, Roxburgh.)
9	Stycuos nux vomica ...	Cangerum	Do.	White and hard. (Wight.)
10	Phylanthus Emblica ...	Nelly	Do.	Hard and valuable timber, (Drury)
11	Terminalia Chebula ...	Pillaymurdoo ...	Do.	Heavy and hard, (Wight.)
12	Dillenia Pentagina ...	Pinnay	Do.	
13	Stereospermum Chelonoides	Padree	Do.	Wood dark and good, (do.)
14	Odina Woodiar	Unnacarry	Do.	Difficult to season.
15	Artocarpus hirsuta ...	Inee	Rotten.	Used in ship building (Ainslie.)
16	Do. hisuta ...	Cuddelynee	Good.	Probably a variety of No. 15.
17	Do. Sylvestris ...	Vellynee	Do.	Wood inferior to Nos. 15 and 16, (Gibson.)
18	Not known	Canagum	Do.	
19	Grewia tiliafolia	Chadachee	Do.	Wood soft, expands and contracts generally, (Wight.)
20	Rottlera tinctoria... ...	Shenduram	Do.	
21	Myrobolan Chebula ...	Manukadookay ...	Do.	
22	Vitex Alata	Mile Elloo	Do.	A good timber. (Drury.)
23	Acacia Odoratissima ...	Curry Vangay ...	Do.	A dark colored, strong and heavy wood (Wight.)
	Second Class.			
31	Terminalia Belerica ...	Thawnee	Do.	Large and valuable timber white and durable, (Drury)
32	Lagerstrœmia Microcarpa.	Venteak	Do.	
33	Do. Regina ...	Poyamurdoo	Do.	In Rangoon used for knees for ships, (Drury.)
35	Nauclea Orientalis ...	Teroocadambay ...	Do.	Wood strong and serviceable, used for Gun Stocks, (Gibson.)
36	Do. Cordifolia ...	Cadambay	Do.	Soft (Wight) weight of a cubic inch 214 Grs. (Fray.)
38	Do. Paroviflora ...	Neercadambay ...	Do.	Strong and close grained, rots if exposed to wet. (Roxburgh, Wight.)
39	Sapindus Emarginatus ...	Oormiee	Do.	Said to be only fit for fuel, (Wight.)
40	Melia Azedarach	Mullayvamboo ...	Do.	Soft, used for Cabinet making purposes, (Wight.)
41	Ficus Asperima	Paragum	Do.	All species of Ficus are of little value as timber, (Wight.)
42	Not known			
43	Do.	Podee Cumly ...	Do.	A light wood.
48	Celosanthus Indica ...	Neervetty	Do.	
49	Not known	Pulgay hvance ...	Do.	Soft, and of no value, (Wight)
		Vullay Cunny ...	Do.	

APPENDIX No. 2.

Sleepers partially attacked by insects buried in Paulghaut yard, &c.—*(Concluded.)*

No. in List.	Botanical Name.	Local Name.	Condition.	Remarks.
	Third Class.			
61	Garcinia Purpurea ...	Adapoolee	Good.	
62	Spondias Myrobolan ...	Ambalam	Rotten	
63	Do. Mangifera ...	Moochee	Good.	Common Mango, useless for sleepers.
64	Not known	Ahvul	Do.	
65	Do.	Coray...	Do.	Wood good for houses and beams, (Drury.)
66	Holigarna Longifolia ...	Chayro	Do.	Wood light and not durable, (Roxburgh, Drury.)
70	Alianthus Excelaus ...	Pootay Chaney ...	Do.	All species of Ficus are of little value as timber.
71	Ficus	Moolumpilatchee ...	Do.	Rejected, unfit for sleepers.
72	Not known	Vennay	Do.	
	Fourth Class.			
83	Not known	Poreccanjeram ...	Do.	
88	Alstonia Scholaris ...	Paulay	Do.	Wood white and compact, (Gibson.)
	The rest	of 4th Class Woods	rejected.	

(True Copy.)
(Signed) W. G. SMART,
Acting Agent and Manager.

(Signed) H. R. P. CARTER,
Resident Engineer, 3rd Division.
(Signed) A. T. WILKINSON,
Resident Engineer, 4th Division.

MADRAS RAILWAY.

Statement showing the condition of certain Pickled Sleepers now lying in Paulghaut Depôt.

Names of Woods.	Number of the Wood.	Good condition.	Split		Affected by insects.	Rotten.	Total.	Remarks.
			Slightly.	Badly.				
Pinnay	12	2,000	2,068	106	...	...	4,174	
Pillay murdoo	11	1,928	75	90	5	4	2,102	
Padree	13	100	112	4	1	...	217	
Thawnee	31	600	120	33	150	...	903	
Chadachee	19	233	...	8	1	...	242	
Venteak	32	701	...	25	1	...	727	
Nelly	10	...	...	11	...	...	11	
Poolay	89	130	55	19	3	2	209	
Unnacarry	14	400	217	26	17	...	660	
Canagum	18	31	...	2	...	...	33	
Nawvel	5	100	15	3	...	...	118	
Ambalam	62	61	...	4	...	...	65	
Mullayvamboo	40	5	5	3	...	...	13	
Kanakiday	18	12	7	2	...	...	21	
Colamon	65	25	12	6	...	...	43	
Nychayroo	66	59	21	3	...	...	83	
Pootay Chaney	70	29	...	2	...	...	31	
Podee Cunny	42	21	12	1	...	...	34	
Munja Cadambay... ...	36	33	...	1	...	...	34	
Dava Paulay	88	42	12	1	...	...	55	
Vennoothungolly... ...	...	68	15	6	4	...	93	Reference being made.
Caut Moochee	63	12	...	...	1	...	13	
Thoodyempolly	...	19	...	...	...	...	19	Do.

Proceedings of the Madras Government, Public Works Department, 15*th November* 1866.

Statement showing the condition of certain Pickled Sleepers now lying in Paulghaut Depôt.

Names of Woods.	Number of the Wood.	Good condition.	Split		Affected by insects.	Rotten.	Total.	Remarks.
			Slightly.	Badly.				
Neercadambay	38	42	...	...	...	...	42	
Kul Allay	69	3	...	...	...	...	3	
Paragum	41	16	...	...	...	...	16	
Conjeram	9	74	...	...	...	...	74	
Moorkoo	87	43	16	...	...	...	59	
Vullay Cunny	49	17	...	...	...	...	17	
Kinee	3	12	...	...	...	...	12	
Adapoolee	61	21	18	...	...	...	39	
Ahvul	64	7	3	...	...	...	10	
Caut Nawel	6	38	...	...	...	...	38	
Kurramurdoo	2	1	...	...	...	...	1	
Inee	15	13	2	...	...	...	15	
Cuddelynee	16	45	...	...	...	...	45	
Molumpilatchee	71	142	...	...	...	...	142	
Oopelee	67	2	...	...	...	...	2	
Poreecanjeram	83	19	11	...	1	...	31	
Mullumpallay	68	8	...	...	...	...	8	
Teroo cadambay	35	21	...	...	...	...	21	
Cholay Chadachee ...	19	7	...	...	...	...	7	
Pottaycallum	82	...	6	...	...	...	6	
Poovum	4	3	...	...	...	...	3	
Total ...	...	...	...	...	...	...	10,191	

To accompany the report.

26*th February* 1866.

(Signed) A. T. WILKINSON.

(True Copy.)

(Signed) W. G. SMART,
Acting Agent and Manager.

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1. Forwarded for the information of Government, and for communication to the Government of India with reference to their Proceedings, dated 8th September 1865, Circular No. 87.

G. O. No. 2,983, dated 9th October 1865.

2. As the Government of India have circulated Captain Lindsay's Report of the preparation of timber according to the "Baucherie" system, it seems desirable that the papers now forwarded should also be circulated to the departments concerned, as it would now appear that the process has not yielded the satisfactory results which were anticipated.

(Signed) J. C. ANDERSON, Lieut.-Col. R. E.,
Consulting Engineer for Railways.

No. 327.

ORDER THEREON, 15th November 1866, No. 3,644.

CIVIL WORKS, No. 69.

These papers will be communicated to the Superintending Engineers, to the Officer in charge of the Store Department, and to the Consulting Engineer for the Madras Irrigation and Canal Company, with reference to the Order in this Department of the 9th October 1865, No. 2,963. They will also be forwarded to the Government of India, with reference to the Circular from that Government dated the 8th September 1865, No. 87.

Ordered that the following letter be sent :—

(Here enter No. 3,645, dated 15th November 1866.)

(True Extract.)

Colonel, R. E.,
Secretary to Government.

To the Consulting Engineer for Railways.
,, Superintending Engineers.
,, Consulting Engineer for the Madras Irrigation and Canal Company.
,, Officer in charge of the Store Department.

Proceedings of the Madras Government, Public Works Department, 15*th November* 1866.

9 ✓

PUBLIC WORKS DEPARTMENT.
FORT SAINT GEORGE,
15*th November* 1866.

No. 3,645.

No. 328.
To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

CIVIL WORKS, No. 70.

With reference to the Circular from the Government of India, No. 87 of 1865, I am directed to forward a copy of the Proceedings of this Government, of this day's date, No. 3,644, from the papers accompanying which it will be seen that, upon further trial, the "Boucherie" process of impregnating timber with a solution of the sulphate of copper has not yielded the results which were at one time anticipated.

I have the honor to be,
Sir,
Your most obedient servant,
(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

Exd. S. T. Augustin.

Madras Railway.

Statement shewing the Condition of certain Pickled Sleepers now lying in Palaghaut Depôt.

Names of Woods.	Number of Test Wood.	Good Condition	Split Slightly	Split Badly	Affected by insects	Rotten	Total	Remarks.
Pinnay	12	2000	2068	106	"	"	4174	
Pillay Murdoo	11	1928	75	90	5	4	2102	
Padree	13	100	112	4	1	"	217	
Jamee	31	600	120	33	150	"	903	
Bhadachee	19	233	"	8	1	"	242	
Veyteah	32	701	"	25	1	"	727	
Nelly	10	"	"	11	"	"	11	
Poaley	89	130	55	19	3	2	209	
Unnaeverray	14	400	217	26	17	"	660	
Conagum	18	31	"	2	"	"	33	
Naawel	5	100	15	3	"	"	118	
Ambalgum	62	61	"	4	"	"	65	
Mulley Vaymbo	40	5	5	3	"	"	13	
Hanakiday	18	12	7	2	"	"	21	
Colamon	65	25	12	6	"	"	43	
Nychayroo	66	59	21	3	"	"	83	
Ponthay Chaymee	70	29	"	2	"	"	31	
Paree Vinny	42	21	12	1	"	"	34	
Munja Cadumbay	36	33	"	1	"	"	34	
Dooree Pawlay	88	42	12	1	"	"	53	
Vennoothungolly		68	15	6	4	"	93	Reference being made
Canty Vloochee	63	12	"	"	1	"	13	Reference being made
Thoodyemholly		19	"	"	"	"	19	
Veen Cadumbay	38	42	"	"	"	"	42	
Hulvellay	69	3	"	"	"	"	3	
Pavedjum	41	16	"	"	"	"	16	
Conjeram	9	74	"	"	"	"	74	
Moorkee	82	43	16	"	"	"	59	
Vullay Vinny	49	17	"	"	"	"	17	
Kinky	3	12	"	"	"	"	12	
Adeepoolee	61	21	18	"	"	"	39	
Abdul	64	7	3	"	"	"	10	
Canty Naawel	6	38	"	"	"	"	38	
Kyrvamvedoo	2	1	"	"	"	"	1	
Vree	15	13	2	"	"	"	15	
Quelelymee	16	45	"	"	"	"	45	
Volumpilatchee	71	142	"	"	"	"	142	
Popelee	67	2	"	"	"	"	2	
Paree Conjeram	83	19	11	"	1	"	31	
Mullum pallay	68	8	"	"	"	"	8	
Veroobadumbay	35	21	"	"	"	"	21	
Vholay Chedache	19	7	"	"	"	"	7	
Pallay callum	82	"	6	"	"	"	6	
Poolum	4	3	"	"	"	"	3	
						Total	10491	

To accompany the report
dtd 10. J. 1866.

True Copy
Sd/ A. J. Wilkinson
Agt Agent & Manager

Sd/ A. J. Wilkinson
26th Feby: 1866.

Appendix No 1.

Sleepers buried in Pairghaut Yard immediately after being pickled

No in Test	Botanical name	Local name	Condition	Remarks
11	Terminalia Chebula	Pillay Murdoo	Good	These Sleepers were examined after having been in the line for 3 months.
14	Odina Wodier	Annacarry	Good	
31	Terminalia Belerica	Tanee	Good	
89	Bambax Malabaricum	Poolee	Good	

True Copy

W. B. Heard

Acting Agent & Manager

Signed H. R. P. Carter
Resdt Engr 3d Division

Signed A. T. Wilkinson
Resdt Engr 4 Division

Appendix No 2.

Sleepers partially attacked by insects buried in Paulghaut yard and examined after 4 months.

No in List	Botanical Name	Vocal Name	Condition	Remarks
3	12	First Class.	3	12
1		Emboguin	Good	
2	Terminalia Glabra	Kyrambudoo	Good	Fit for Sleepers without pickling
3	Bridelia Spinosa	Kinee also called Mooloovenga	Good	Dark colored hard & durable / Roxburgh /
4	Schleichera trijuga	Pooveum	Good	Red strong hard wood / Ainslie /
6	Engenia Jambolana	Cooty Nawel	Good	Fine hard & close grained / Roxburgh /
8	Diospyros Candefolia	Vuttamary	Good	Hard heavy wood strong / Wight / Roxburgh /
9	Strychnos nux vomica	Cangeroni	Good	White & hard / Wight /
10	Phyllanthus Emblica	Nelly	Good	Hard and valuable Timber / Drury /
11	Terminalia Chebula	Pellaymurdoo	Good	Heavy and hard / Wight /
12	Dillenia Pentagina	Pinnay	Good	
13	Stereospermum Chelenoides	Padree	Good	Wood dark & Good / Wight /
14	Odina Wodier	Unnacarry	Good	Difficult to season
15	Artocarpus hirsuta	Anee	Rotten	Used in Ship building / Ainslie /
16	do hirsuta	Cuddelynee	Good	Probably a variety of No 15
17	do Sylvestris	Vellynke	Good	Wood inferior to No. 15 & 16 / Gibson /
18	Not Known	Canagum	Good	
19	Grewia tiliæfolia	Chadachee	Good	Wood soft expands & Contracts generally / Wight /
20	Bottlera tinctoria	Sheenduram	Good	
21	Myrobolan Chebula	Manmadoothay	Good	
22	Vitex Alata	Mile Elloo	Good	A good timber / Drury /
23	Acacia odoratissima	Curry Vaugay	Good	A dark colored strong & heavy wood / Wight /
		2d Class Wood		
31	Terminalia Belerica	Thawnee	Good	Large and valuable timber white & durable / Drury /
32	Lagerstramia Microcarpa	Venteak	Good	
33	do Regina	Poyamundoo	Good	In Rangoon used for knees for ships / Drury /
35	Nauclea Orientalis	Thoocadumbay	Good	Wood strong & serviceable used for Gun stocks / Gibson /
36	Nauclea Cordifolia	Cadambay	Good	Soft / Wight / weight of a cubic inch 212 Grs / Fray /
38	Nauclea parviflora	Neercadambay	Good	Strong & closed grained rots if exposed to wet / Roxburgh /
39	Sapindus Emarginatus	Corinjee	Good	Said to be only fit for fuel / Wight / Wight /
40	Melia Azedarach	Mullay vamboo	Good	Soft used for Cabinet making purposes / Wight /
41	Ficus Asperima	Paraquim	Good	All species of Ficus are little value as timber / Wight /
42	Not Known	Podee Cumly	Good	A light wood
43	do	Neervetty	Good	
48	Celosanthus Indica	Pulgay Cyanee	Good	Soft and of no value / Wight /
49	Not Known	Vullay Cumy	Good	
		3d Class Woods		
61	Garcinia Purpurea	Ada Poole	Good	
62	Spondias Myrobolan	Ambalam	Rotten	
63	Spondias Mangifera	Mopchee	Good	Common Mango useless for Sleepers
64	Not Known	Ahoul	Good	
65	do	Coray	Good	
66	Voligaria Longifolia	Chayro	Good	Wood good for houses & beams / Drury /
70	Ailanthus Excelsa	Pootay Chaney	Good	Wood light and not durable / Roxburgh, Drury /
71	Ficus	Moolumpulatchee	Good	All species of Ficus are of little value as timber
72	Not Known	Venmay	Good	Rejected unfit for Sleepers. -
(83	do	Ponee Cangeram	Good	
88	Alstonia Scholaris	Paulay	Good	Wood White and Compact - (Gibson)
	The rest of 4th	Class Woods rejected		

/ True Copy /
W. B. Lucas
Acting Agent & Manager.

/ Signed H. R. P. Carter /
Resident Engineer 3d Division

/ Signed A. J. Wilkinson /
Resident Engineer 4th Division

E&R 1

No. 423.

Forwarded for the information of Government, and for communication to the Government of India with reference to their Proceedings dated 8 September 1865, Circular No. 87.

G.O. No. 2983 dated 9 October 1866.

2 As the Government of India have circulated Captain Lindsay's report of the preparation of Timber according to the "Boucherie" System, it seems desirable that the papers now forwarded should also be circulated to the Departments concerned, as it would now appear that the process has not yielded the satisfactory results which were anticipated.

Madras - 30 October 1866

I have &c
J. Anderson Lieut.-Colonel R.E.
Consulting Engineer for Railways

To
The Secretary to Government
P.W.D.
Fort Saint George

Madras Railway
Madras 24th October 1866.

No 527

From

W. P. Smart Esqre
Acting agent and Manager of the
Madras Railway Company

To

Lieutt Col. A. C. Anderson, R.E.
Cons Engineer for Railways

Sir,

1. Referring to proceedings of Madras
Government, P.W.D. dated 9th October 1865,
on the subject of the preparation of timber
by Boucherie's process, further experience
and the Conclusion at which the Officers
of this Company have ultimately arrived
will doubtless be interesting to you and
the departments to which the above
proceedings were communicated.

2. In consequence of the unfavor-
able reports received from the Engineers,
Messrs Carter and Wilkinson were instructed
in the early part of this year to collect
evidence and report on the results of
the Boucherie process. In reference to
the liability of the impregnated woods
to the attacks of worms, they state under
date of 23d February 1866.

"In Pulghaut yard, where
"the greatest numbers of pickled sleepers
"are stacked the woods which appear to
"be most injured are Annaeamy
"(Odina Wodier) and Thannee (Terminalia
"Belerica). Sleepers of these woods are in

"bored to such an extent as in many
"cases to render them unfit for use. The
"insect is a Coleopterous one and is said
"to belong to the Genus Apate (Fabricius)
"and family Bostricida.

"This Beetle bores into the wood
"to the depth of about 1½ inches and lays
"its eggs in the hole. After the eggs
"become larvae, the principal damage
"seems to commence, as the larvae bore in
"all directions inside, and continue to
"feed on the wood until they are developed
"into perfect insects.

"Finding that a very general
"opinion prevails amongst the natives that
"all woods cut between the 3d & and 12th
"day after new moon are liable to the
"attacks of insects (which opinion is
"noted by Dr Cleghorn). We had trees
"of the woods most liable to the attacks
"of the insects cut near the Depôt of
"Topanand on the 6th day after new
"moon, parts of these trees we have had
"pickled and parts left unpickled
"and we intend to place them where
"the insects abound. Some time must
"elapse before we can report the results.

"It was reported to us that
"the larvae of some insects were frequently
"driven out of some woods during
"pickling, none however were seen by
"us in the four sorts of timber we
"experimented on, it is Mr Carter's
"opinion (who on one occasion saw
these

"these larvae) that they are the larvae of saw
"flies whose attacks are principally confined
"to the barks. . . . . .

"The fact of pickled sleepers being
"destroyed by insects is so important, that we
"consider it necessary to recommend that the
"Contractors be prohibited from pickling Sawn
"Carry and Khamea for the present. The time
"and attention necessary to go thoroughly into the
"subject renders it impossible that we can now
"let you have an exhaustive report: We
"are experimenting on several woods under
"various Conditions, and the results will be
"duly Communicated. In the course of
"our enquiries we have found that several
"of the woods selected for sleepers are badly
"split. Mr Wilkinson herewith encloses
"a list showing the number of sleepers,
"attacked by insects and split, out of the
"total number sent in to Palghaut. We
"believe that a careful revision of the
"woods now being used for sleepers will
"have to be made as we fear several
"of them will be found unsuitable for the
"requirements of the Railway."

On the 3d September they
wrote in continuation

"We examined the sleepers which
"were pickled in our presence and after-
"wards put down in Palghaut yard; the
"woods were those most liable to be attacked
"by the boring Beetles (see appendix 101) and
"were in good condition after having been
"in the line for 3 months; the unpickled portion
of

"of the same (unburied) were attacked by
"the insects. . . . . .

"We also had a large number of the
"pickled sleepers which were previously,
"whilst stacked in Palghaut yard, bored
"by insects, buried; on examining these,
"we found in every instance that the
"larvae had died, the sleepers generally
"were in fair Condition (see Appendix No 2)

"We may therefore assume that
"pickled sleepers buried soon after being
"cut are not liable to the attacks of insects
"and that if only slightly attacked when
"buried, the insects die. . . . . .

"As regards the effect of
the process itself on the timber they state
that having given the matter the most
careful consideration and examined
specimens of all the woods in use, both
in their natural and pickled state, the
Conclusion at which they have arrived
is that the strength of the timber and
its durability are rather lessened than
increased. The tendency of the woods to
split under the influence of the sun is
said to be much greater in the pickled
than in the natural state, and the theory
on which this is attempted to be explained
is as follows:

"We believe that this is caused
by the water of the solution being more
quickly evaporated than the water in the
sap would be, as the latter is in chemical
combination with various alkaloids and
acids; whilst the former is a solution only.

"The result is that the sleepers become
prematurely and unnaturally seasoned,
and as the woods generally if unprepared,
would not be suitable for sleepers; when
dried up, they appear useless; most of them
seem as if they would not hold a trenail
and as we are now using iron trenails
they would be more likely to become loose
than new wooden ones".

On a recent occasion when
I had an opportunity of Conversing with
Mr. Carter on this subject, he told me that
some of the pickled sleepers were so
worthless (in consequence apparently of
complete desiccation) that they broke in
pieces like a carrot when thrown out of
a waggon. The process has been abandon
-ed and we are about to revert to the use
of the old sanctioned woods.

In connection with this
subject and with reference to the information
you were so good as to communicate to
me in respect to the breakage of pot
sleepers on the East Indian Railway, I
may mention that Mr. Dixon Acting Chief
Engineer has just furnished me with his
Quarterly report from which I find that
between Madras and the Shemroy Hill
station (1st and 2d Divisions) a distance,
including sidings, of 211 miles, the number
of pots removed during the quarter
amounted to 245. The number of pots

in the road is 618370, and we commenced laying them down in the beginning of 1861. I think the very large breakage on the East Indian Railway is to be accounted for; 1st by the use of timber sleepers at the joints and 2nd by the description of ballast used.

A mixed road (i.e. a Combination of iron with wood sleepers) is invariably bad. About 2 years ago, I was very short of fish plates for the permanent way of the North West Line and to save time, I used wood sleepers at the joints with double chairs. The Engineers found it impossible to keep a good road, the wood and the iron offering unequal resistance to the passing load. I was obliged to remove the timber sleepers at the joints as soon as fish plates could be procured.

As regards the ballast. Kunkur is quite unsuited to iron sleepers, it is much too hard and too liable to bind. A friable substance like sand, fine gravel or Moorumboo, is indispensably necessary to secure a smooth road and to prevent breakage. I believe that the greater number of the sleepers found broken in our line have been cracked in shipment or unloading from waggons as there are evidences, in nearly all that are removed, of slight flaws or cracks of old standing. Further than this we are in the habit of using up the cracked but serviceable sleepers in sidings and lay byes and I have no doubt some of these which have become useless are included in the Divisional return.

I have the honor to be
Sir
Your most Obedient servant
[signature]
Agent and Manager

27

xCP

1866

Madras Railway

No

The Acting Agent & Manager
of the M. R. Co.

Y. No 4421/66.

The Secy: Engineer
for Railways

Dated 24 Oct. 1866
Recd — 26. — "
No 529.

Forwarding Extracts from
Reports received from
Divn Cadet & Millinium
relative to the destruction
of Sleepers impregnated by
the Boucherie process, as
also his Divn relative to
the breakage of Pot Sleepers.

9th Octr/65 N. 2983

Proc. of Govr Nougulier 1866. No 4421

RAILWAY DEPARTMENT.

From

The Consg. Engineer for Railways,

To

The Secretary to Government,
P. W. Dept.

Dated 30th October 1866.
Received 31st

No. 423-

Enclosures, No. 3 -

Observations on a letter from the Agent & Manager, forwarding Extracts from reports received from Messrs Carter & Wilkinson relative to the durability of sleepers impregnated by the Bourcherie process-

nos 3644-3645-15th Nov/66

No 326.

C. 7th Nov 1866 R. 8th

Public Works Department.

nos 3644

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 15th Nov 1866

Read the following

the Consg: Engineer for Railways—(Here enter No. 4233 of 30th October 1866.)

These papers will be communicated to the Superintending Engineers, to the Officer in charge of the Store Department, and to the Consulting Engineer for the Madras Irrigation and Canal Company, with reference to the order in this Department of the 9th October 1865, No 2963. They will also

also be forwarded to the Government of India, with reference to the Circular from that Government dated the 8th September 1865 No 87.

Ordered that the following letter be sent:

To No. 3645.
The Secretary to the Government of India
P. W. D.

Sir

With reference to the Circular from the Government of India, No 87 of 1865, I am directed to forward a Copy of the Proceedings of this Government, of this day's

3 to Cus Engr in Rep ✓
NB to S.E. ✓
4 " Consulting Engr Madras & A.G. ✓
2 " Accountant of the Fine Dept ✓
Dept 16th Nov. 66.

137
12

Fort St George
15th Nov. 66

day's date, No 33 ✓, from the papers accompanying which it will be seen that, upon further trial, the "Boucherie" process of impregnating timber with a solution of the Sulphate of Copper has not yielded the results which were at one time anticipated.

14
2

Dept. with Govt No. 3624 of 1866,
16th Nov. 66

34

p 27 1866 Dupl

Pr: of Canal Lock Voucher

1 Acct 3644 3645

Pr: of the Master Cork

D/ 15 November 66

Passing orders on certain papers on the subject of preparation of timber by Commissioners process.

Ap 826 @ 328