

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

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Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
4th October 1864.*

No. 32. Read the following letter from W. HUDLESTON, Esq., Secretary to the Board of Revenue, to J. D. SIM, Esq., Secretary to Government, Revenue Department, Fort Saint George, dated Madras, 20th August 1864, No. 5,360 :—

SIR,

1. With reference to paragraph 2 of Government Order, dated 11th March 1864, No. 427, Revenue Department, I am directed by the Board of Revenue to submit a file of the Collector's replies to the Board's Circular Order inquiring which of the Agricultural implements promised by the Secretary of State and not required at Oosoor could be usefully exhibited in their Districts, together with a Tabular Statement showing the distribution which the Board would propose of the few available implements. The Government will observe that far more have been applied for than are available, and the Board while they have endeavoured to make a useful distribution, at the same time propose that the Collectors should interchange specimens at discretion after exhibition and trial in the original District, so that the implements may be seen as widely as possible, and that they should also notify their readiness to aid in procuring from England any implement which any landholder may wish to obtain for actual use.

2. The proposed distribution is as follows :—

GANJAM	1 Horse Hoe, 1 Scythe, 1 American Horse Rake.
VIZAGAPATAM	1 Plough, 1 Chain Harrow, 1 Scythe, 1 large Hand Rake.
GODAVERY	1 Horse Hoe, 2 Scythes, 1 Rice Hulling Machine with cleaning apparatus and Water wheel.
KISTNA	1 Horse Hoe, 1 Scythe.
NELLORE	1 Plough, 1 Chain Harrow, 1 Scythe, 1 Rice Hulling Machine without power, 1 Winnowing Machine, 1 Chaff cutter.
BELLARY	1 Grubber, 1 Harrow, 2 Scythes.
CUDDAPAH	1 Horse Hoe, 1 Scythe, 1 Threshing Machine with American 2 Horse-power band, 1 Chaff cutter.
KURNOOL	1 Plough, 2 Scythes, 1 Large Hand Rake.
MADRAS	1 Grubber, 1 Horse Hoe, 2 Scythes, 1 Large Hand Rake, 1 Threshing Machine with English Horse-power.
NORTH ARCOT	1 Plough, 2 Scythes, 1 American Wooden Horse Rake.
SOUTH ARCOT	1 Horse Hoe, 1 Scythe.
TANJORE	1 Plough, 1 Scythe, 1 Threshing Machine, Winnowing and Dressing Machine with 2 Horse-power.
TRICHINOPOLY	The Collector recommends that his District should look to Tanjore which is easy of access by rail and much more advanced in agriculture, to acquire knowledge of the implements.
MADURA	1 Horse Hoe.
TINNEVELLY	1 Plough, 1 Harrow, 2 Scythes, 1 Chaff cutter.
COIMBATORE	1 Rice Hulling Machine without power ; 1 Winnowing Machine.
SALEM	1 Plough, 2 Scythes.
SOUTH CANARA	1 Horse Hoe ; 2 Scythes.
MALABAR	1 Plough, 1 Scythe, 1 Large Hand Rake, 1 Threshing Machine (Winnowing and Dressing) with 2 Horse-power.
	The Collector recommends that none be sent, and Coimbatore, Salem, North Arcot, and Madras, can easily send implements later by rail, if desired.

3. The above distribution disposes of all the implements not required for Oosoor. The Board have been influenced in making it by considerations of the circumstances of the Districts as regards position, cultivation, and residents capable of appreciating the implements. They may mention that the fact of the German Missionaries in South Canara having among them gentlemen acquainted with agriculture in Europe, and holding land to a considerable extent in

*Proceedings of the Madras Government, Revenue Department,
4th October 1864.*

cultivation, has induced the Board to send there one of the Threshing Machines, which is asked for by the Acting Collector.

4. The Collectors should be instructed to have the implements fairly and frequently tested in actual field work in the near neighbourhood of their Head-quarter stations, and in different qualities of soil and kinds of cultivation; and unless they are satisfied by actual experience that from weight or other cause the implements are unsuited to the cultivation of the District, they should use their best endeavours to induce a proper appreciation of their advantages by the Ryots. They should report without delay when and why any implement is finally condemned in order that it may be tried elsewhere if deemed advisable.

5. The Board recommend that as the time for the Nellore Exhibition approaches, the Collector be authorized to obtain such of the implements allotted to Madras as he may desire to exhibit at work during that time.

No. 33. ORDER THEREON, 4th October 1864, No. 1,828.

Miscellaneous.

1. In paragraph 2 of the Order of Government 11th March last, No. 427, the Board of Revenue were instructed to report (after consulting the Collectors), the best mode of turning to account the agricultural implements expected from England and not required at Oosoor.

2. The Board now submit the replies of the Collectors, and a distribution list as proposed by them.

3. The Board propose that every District, except Malabar and Trichinopoly, should be supplied with some or other of the various descriptions of implements available; and the distribution appears good, on the principle adopted by the Board.

4. The Government, however, believe that it will be more conducive to the important object in view to make the implements up in sets as completely as practicable, and to send them from District to District to be exhibited at work, than to send some to one District and some to another.

5. Each set might be composed as follows:—

- 2 Wooden Beam Ploughs.
- 1 Grubber.
- 1 Harrow.
- 1 Chain Harrow.
- 2 Horse Hoes.
- 6 Scythes.
- 1 American Wooden Horse Rake.
- 2 Large Hand Rakes.
- 1 Threshing Machine, 2 horse-power.
- 1 Hand Chaff cutter.

It is observed that two such sets may be made up, leaving a surplus of—

- 4 Wooden Beam Ploughs.
- 4 Horse Hoes.
- 12 Scythes.
- 2 Threshing Machines.
- 1 Hand Chaff cutter.

Of these, the Threshing Machines may be allotted to Tanjore and the Godavery; the Chaff Cutter and a few Scythes to Madras, and the rest to different Districts at the Board's discretion.

6. Of the two sets above referred to, one might start from Madras and work northwards, the other from Salem southwards. This plan involves the necessity of employing a small establish-

*Proceedings of the Madras Government, Revenue Department,
4th October 1864.*

ment to be in charge of, and to travel along with the sets, and the Government will be prepared to sanction the outlay requisite for the purpose. They think that a European Overseer with a few Lascars will suffice for each set, but on this point the Board will be requested to report.

7. There remain also three Rice Hulling Machines, one with, and two without power. The Board propose to send the largest* of these to the Godavery District, and although a private

* With water wheel, &c., cost £250.

firm there already possesses one, this seems the best arrangement. If however sufficient water power is available in Tanjore, the Machine, the Government think, might in preference be sent to that District; otherwise Tanjore should be supplied with one of the smaller ones, and either Nellore or Tinnevely, with the other.

8. The Board will be desired to take the necessary steps for giving effect to this order, reporting their proceedings for the information of Government. They will instruct the Collectors to make the fact of the working of the implements as public as possible, and to allow the Ryots freely to witness the same. As the Machines will require power to work them, and men will have to be taught the use of the Scythes, &c., the Collectors should be requested to arrange for providing for these wants, either by inducing the Land-holders to supply the power, or by charging such a sum for Ploughing, Threshing, &c., as may be sufficient to cover the cost of hiring power.

9. As regards the Steam Plough, the Government would wish that it should, on arrival, be set up and worked by Mr. Barwell in the immediate neighbourhood of Madras for a short period, notice being given throughout the District that the Ryots may come in and witness its working. It may next be moved (by Rail) to Vellore and exhibited in a similar way near the Railway station; then to Salem and Coimbatore and back to Oosoor to plough up the Farm there; after which a further tour can be arranged. A certain number of trained men will be required to work the plough under Mr. Barwell. On this point the Board will consult Mr. Barwell and make the necessary arrangements. The set of implements intended for the Southern District, might be sent along with the Steam Plough so far as it is taken.

(True Extract.)

(Signed) J. D. SIM,

Secretary to Government.

To the Board of Revenue.

Exd. T. O'Connor.

The number of these required for use and exhibition by the Remount Agent Oosoor and Collectors.

[illegible]

Suggests that one specimen of each of the Implements and Machines be sent to every District for permanent exhibition.

Statement showing the Implements and Machinery proposed to be sent out by the Secretary of State

[illegible]

MISCELLANEOUS CIRCULAR, No. XXVIII.

Board No. J,737.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 23rd March 1864.

Read the following Proceedings of the Madras Government, dated 11th March 1864, No. 427,
Revenue Department:—

ABSTRACT—Communicating a Despatch from the Secretary of State for India regarding the transmission of certain Agricultural Implements and Machinery, and requesting the Board to report after communication with the Collectors as to the best mode of turning to account the implements not required at Oosoor.

1. Communicated to all Collectors for report as to the machines which, if not required at Oosoor, can, in their opinion, be most usefully exhibited in their respective Districts.
2. Their attention is called to paragraph 11 of Sir C. Wood's Despatch, but the Board feel confident that, they may safely rely on every Collector's best efforts to promote the success of an experiment which promises to have a most important effect on the industry of the people.

(A true Extract.)

(Signed) W. HUDLESTON,
Secretary.

(True Copy.)

(Signed) H. M. C. KELLY,
Acting First Assistant.

To All Collectors, with spare copies of Government Order.

Ed. J. Wright.

From the Collector of Kurnool, dated 8th April 1864.

1. With reference to your Miscellaneous Circular No. XXVIII (Board No. 1,787), dated 23rd March, I have the honor to state that I shall be happy to receive for exhibition any of the implements therein alluded to not required at Oosoor, but on examination of the list appended to General Cotton's letter it does not appear likely that any of the more important Machines will be available for this District.

2. A beam plough, harrow, horse hoe, and horn and hand rakes being improvements on implements already in use would probably be the most readily adopted for imitation, and might be spared for Kurnool.

Exd. J. Wright.

MISCELLANEOUS CIRCULAR, No. XXVIII.

PROCEEDINGS OF THE BOARD OF REVENUE.

To All Collectors.

Dated 23rd March 1864.

Received

Board No. 1,787.

Communicating with certain instructions
Despatch of the Secretary of State regarding
the transmission of certain Agricultural
Implements and Machinery.

From the Collector of Tinnevely, dated 13th April 1864, No. 144.

1. Adverting to the Board's Miscellaneous Circular, No. XXVIII (Board No. 1,737), dated 23rd March 1864, I have the honor to request, that referring to the list of Agricultural implements and machinery, appended to General Cotton's letter of 2nd January 1864, the following may, if possible, be forwarded for exhibition in the Tinnevely District :—

- 1 American swivel Plough.
- 1 Grubber.
- 1 Harrow.
- 1 Horse Hoe.
- 3 Light two-handled Scythes (the Aberdeen Scythe).
- 1 Threshing machine with American
- 2 Horse power band (winnowing and dressing machine).
- 1 Small hand Chaff cutter.

2. I trust that the exhibition of these implements may result in the imitation at least of some of them by the native cultivator; and my best efforts to promote the success of the experiment shall be heartily afforded.

Exd. J Wright

From the Collector of Trichinopoly, dated 14th April 1864, No. 62.

1. I have the honor to acknowledge the receipt of the Board's Miscellaneous Circular No. XXVIII (Board's No. 1,787), dated 23rd March 1864, in which Collectors are called to state what machines of those expected from England, at the requisition of the Madras Government can, if not required at Oosoor, be most usefully exhibited in their respective Districts.

2. In reply I beg to state that, so far as I can see, the only ones adapted for exhibition in this District at present are a rice hulling machine with cleaning apparatus, and a grinding mill to be worked either by wind or water.

3. In regard to purely agricultural implements or machines, such as ploughs, harrows, grubbers, &c.; the Ryots of Tanjore are so much in advance as farmers of the Ryots in this District generally, that I would rather trust to the former availing themselves of the implements referred to if they could get the use of them, and to the latter profiting by and following their example, than to the people of Trichinopoly taking the initiative in the use of such novelties. I do not therefore advocate the exhibition of them here. The Railway between this place and Negapatam makes communication with the Tanjore District so easy, that any Trichinopoly Ryot hearing of a new plough for instance being in use in that District could go down by rail to see it in operation if he had any idea of purchasing or hiring such an implement, provided he saw it would suit his land. It is not unlikely that the Collector of Tanjore may suggest the exhibition of some such implements in his District, and if so the Ryots of this can see them at work there.

4. In regard to the use of wind or water for working the machines, the exhibition of which would I think be advisable here, I give my opinion with much diffidence; but I do not think that the force and duration of the wind in this District at any season is sufficient to be depended on for any length of time consecutively. I am told that from June till September strong westerly or south-westerly winds prevail; but I cannot speak from experience, as I have been but a few months in the District. At present the wind is not strong enough to drive a windmill that would have to do heavy work save perhaps from 4 till 9 P. M. daily.

5. Though we have no lock in any of the irrigation channels in this District, yet there is sufficient current in some of them* to show,

* The Wyacondan, which passes through the Town of Trichinopoly for instance.

I think, that a new small channel with a slighter fall might be led off from the head

sluice of the existing one, so as to supply water to drive abreast or even overshot water wheel at a moderate distance from the head of the channel, and which need not be sunk below the general level of the country. Perhaps the water would have to be brought by a raised aqueduct for some distance, in the case of an overshot wheel. This is a matter on which of course an Engineer's opinion must be taken; and I beg merely to hint at the possibility of using water instead of wind power. The supply of water in the Cauvery in the hottest weather would be ample to furnish the requisite driving power.

6. There is a large* Mussulman population in this Town, as the Board are aware, who use quantities of wheat flour as food. Much

* About 12,000.

is also required for the supply of bread, &c., to the European Troops and residents here;

raggy flour is a favorite article of food with the poor and lower class of Hindoos. A mill that would grind either wheat or raggy into fine flour would therefore produce a commodity for which there would be a large and certain daily demand in the Town and the District generally. I do not think that the people would have any religious objection to use flour so prepared, or fear that they would be defiled by it because prepared by European machinery. If not, I am sure that a flour mill driven by water power could be worked here at a profit. Similar remarks will apply also to a rice hulling and cleaning machine. I feel confident that no objection would be made by Brahmins even to machine husked and cleaned rice; and if it could be sold cheaper than that prepared by hand of course it would command the market.

Exd. J. Wright.

From the Collector of Coimbatore, dated 14th April 1864, No. 72.

1. I have received Proceedings of the Board of Revenue, dated 23rd March 1864, No. 1,787, calling on Collectors to "report as to the

Miscellaneous Circular, No. 28.

"machines which, if not required at Ossoor, can
"in their opinion be most usefully exhibited in

"their respective Districts." In the list of Implements and Machinery appended to General Cotton's letter the only implements which seem at all likely to come into use in this District for years are the improved ploughs, grubbers, harrows, and hand rakes; but their prices are so high that I fear they are quite beyond the means of the people. The high prices of the machinery are sufficient to preclude their introduction. Still I consider the establishment of a farm in which improved implements and machinery could be seen at work is a subject well worth the attention of Government as tending to the improvement of agriculture. The Ryots are ready enough to appreciate benefits when placed palpably before their eyes. In this, as in most Districts, improved ploughs would come into use chiefly in the case of dry lands; but where there is so little rain, as is the case unfortunately in Coimbatore, inducements to purchase expensive implements are more limited than in other parts of the country where the chances of getting a good return for the labor and expense incurred are less precarious.

2. With regard to irrigated land the advantages of the present improved ploughs are doubtful; the object to be attained is peculiar; before the fields are touched with a plough they are flooded with water for some hours and then ploughed up in every direction until they are reduced to the consistency of mud, when they are ready to be planted out with the young paddy plants which have been raised in beds; the small improved harrows would probably be made use of in preparing these lands.

3. With regard to the threshing machines it is doubtful whether they will come into general use. The mode of threshing paddy in Southern India is most simple and inexpensive, and I believe not understood by the majority of Europeans; it is a mistake to imagine that the bulk of the grain is trodden out by bullocks; such is not the case; not more than from 6 to 9 per cent. is thus treated. The paddy is cut and carried to the threshing floor whilst it is wet with dew. As soon as the sun is up, and the dew has evaporated, the point of junction of the paddy with the stalk becomes so brittle that a man has only to take up a sheaf which he cleverly encircles with a straw wisp secured by the thumb of each hand and raising it over his head to bring it down on the threshing floor twice when away goes all the grain leaving 6 or 9 per cent. only with the straw; and this is subsequently trodden out by bullocks after the whole of the grain has been threshed; each day sees the crop cut, threshed, winnowed, and measured. The winnowing is as simple as the threshing; there is sure to be a breeze blowing, and whilst one party is threshing the other is winnowing the grain by letting it fall gently on the ground from a height of three or four feet from the ground. This part of the work generally falls to the lot of the women; and all parties are interested in the speed and care with which the work is done as they are paid as a rule in grain at the end of the day. I make these Statements with some confidence as to their correctness, as in the early part of my Revenue career I had to superintend reaping, &c., of the crops on several hundred acres of land; and I state them here as it is of importance that those who are exerting themselves to improve and aid the Ryots should be in possession of correct information on the subject with which they are dealing. As already observed, improved ploughs, grubbers, harrows, and hand rakes are most likely to be brought into use in this District. Small hand mills for grinding dry grain might come into demand; good cotton gins would at present command an extensive sale.

4. But valuable as all the suggestions made by His Excellency the Governor, in view to the improvement of the existing state of agriculture are, and undoubtedly they are valuable; any improvement tending to facilitate the irrigation of lands from wells exceeds them all so far at least as the Province of Coimbatore is concerned. The rain-fall is so scant and precarious that the chances of the introduction of improved implements in the cultivation of land dependant on it alone are limited; but let the Ryots feel assured that they will get water, and other improvements will follow in due course.

Exd. J. Wright.

From the Collector of Salem, dated Camp Green Hills, 15th April 1864, No. 63.

1. With reference to the Board's Miscellaneous Circular, No. XXVIII, communicating a Despatch from the Secretary of State for India regarding transmission of certain Implements and Machinery, I have the honor to forward a list of articles which I think might be usefully exhibited in the District.

- 1 Wooden Beam Plough.
- 1 American Swined (? Swivel) Plough.
- 1 Harrow.
- 1 Horse Hoe.
- 2 Scythes.
- 1 Threshing Machine.
- 1 Rice Hulling Machine.
- 1 Winnowing Machine.

2. The Implements, such as Ploughs, Harrows, Horse hoes, to be of any use should be *much* lighter than any used in England. Captain Nelson of Siddapore, imported light English Ploughs, but found them too heavy for the largest bullocks.

3. Unless therefore these Implements are made far lighter than usual so as to be used in this country, and seen by the natives in use, they will merely be so much lumber.

Exd. J. Wright.

From the Collector of Ganjam, dated Chatterpore, 25th April 1864, No. 69.

I. Adverting to Board's Miscellaneous Circular, No. 1,787, dated the 23rd ultimo, forwarding order of Government and copies of correspondence regarding the introduction of various improved implements of husbandry, which paper I regret not having seen earlier owing to unfortunate circumstances, I have the honor to beg that if still available all the simple instruments named in General F. Cotton's List may be sent up to me for exhibition; or if they are, as is probable, already bespoken that orders may be sent to pass them on from some neighbouring District to this.

2. A few years ago the Ryots here eagerly appreciated the advantages of an improved cast-iron cane crusher made at the Aska Works; and they now use them whenever they can get them. I believe many of the implements named in the list would be as readily appreciated; and if this proved to be the case we could get others made up readily at Aska, where, it is but justice to the Managing Proprietor to say, the greatest readiness is always shown to assist in any scheme for general improvement among the Ryots. *

Exd. R. H. Lee.

*a barrel might be
made up
with the
in the*

From the Collector of Vizagapatam, dated 26th April 1864, No. 238.

In reply to Miscellaneous Circular, No. XXVIII, Board's No. 1,787, I have the honor to annex a "Memorandum" of the machines which are likely to be usefully exhibited in this District. Indeed I have the assurance of the Vizianagram Maha Rajah's Manager, that if the machines are sent he will give them a fair trial in that Zemindary, and if found to answer he will of course provide himself with a supply :—

- 1 Wooden beam plough, with sub-soil body.
- 1 Grubber (with extra trus.)
- 1 Harrow.
- 1 Horse Hoe.
- 1 Reaping Machine for one horse, with duplicate parts.
- 1 Large Hand Rake.
- 1 Small Chaff Cutter.
- 1 Threshing Machine.
- 1 Winnowing Machine.

Ed. R. H. Lee.

From the Acting Collector of Cuddapah, dated Muddenpully, 27th April 1864, No. 49.

With reference to the Board's Proceedings, dated 23rd March 1864, No. 1,787, calling on all Collectors to inform them what machines they

Miscellaneous Circular, No. XXVIII.

think, if not wanted at Oosoor, could be most successfully exhibited in each District, I have the

honor to inform you that I am of opinion that those best adapted to this District are :—

Harrows.

Reaping Machine for one horse.

Iron Horse Rake.

Threshing Machines, with American two horse power band, &c.

Winnowing Machine.

Hand Chaff Cutters.

Exd. R. H. Lee,

From the Collector of Nellore, dated Krishnapatnam, 28th April 1864, No. 110.

1. Any of the articles named in the list given by General Cotton in his letter forwarded with the Board's Proceedings* of the 23rd ultimo,

* Miscellaneous Circular, No. XXVIII.

No. 1,787, I have the honor to state can

be usefully exhibited in this District, save reaping and mowing machines, and steam ploughs.

2. I would get some of our more substantial Ryots to give whatever may be sent me of the articles in the beginning of the list a trial; and I think we should unquestionably gain by the exhibition of such improved implements. Probably few, if any, of our Ryots could afford to buy what they saw. But they would all give their time and attention to what was thus placed before them; and they have minds equal to profiting by the opportunity.

3. I am sorry no Drills have been sent. Those exhibited at our show last week were very ingenious; and to have been able to compare them with a good English Drill would have been an advantage that could not well be over estimated; and I sincerely hope General Cotton may soon be successful in meeting with what he considers suitable to this country; and Nellore may be fortunate enough to be furnished with one of the samples sent.

4. In this District for two months, March and April, we have a southerly wind; from May to October we have it stronger and steadier from the west; and for the rest of the year under the Anikut we have a supply from the river that could be depended on to turn a Mill. It would therefore be scarce possible to be better off for motive power; and as regards machines for threshing, hulling rice (the less expensive), or sawing, should the Government think fit to send one of each here, I would recommend their being put up at the first or second crop on the Krishnapatnam canal, and under the management of the Department Public Works. Put up as a combined Mill, the same motive power would thresh, hull, and saw. We have a good road. We have the grain grown around us; and with the combined action I do not doubt the results would prove most useful and satisfactory.

5. I have not yet discussed the question with the Officers of the Department. But if the propriety of sending one of each of the machines here should be held worthy of consideration, I would of course without further loss of time consult those on whom the success of the undertaking would mainly depend, and submit more definite proposals. Probably application would then be made for the requisite machinery, if available, to enable the Mill to be worked by bullock power, should both wind and water fail us when work was pressing.

Erd. R. H. Lee.

From the Collector of Bellary, dated Ramandroog, 23rd May 1864, No. 76.

1. With reference to the Board's Miscellaneous Circular No. XXVIII, Board No. 1,787, under date 23rd March last, calling on me to report as to the mode of turning to account, certain agricultural implements and machines (if not required at Oosoor), referred to in the Despatch from the Secretary of State for India therewith received, I have the honor to state that some of the cheapest and lightest machines named in the list appended to General F. C. Cotton's letter, dated the 2nd January last, embodied in Government Proceedings No. 427 of 11th March last, may be most usefully and suggestively exhibited in this District; and I would propose that the

- 1 Wooden beam Plough with subsoil body.
- 1 Grubber (extra tins added).
- 1 Harrow.
- 1 Horse Hoe.
- 1 Hand Rake.

marginally noted machines may be forwarded so as to reach me before the next settlement, which will probably commence about the middle of November; I shall then be able to explain to large numbers their advantageous qualities.

2. Most of the machines on the list are, I fear, too heavy and costly for the ignorant Ryots of this District to be induced to purchase; although, considering the generally hard nature of the Regal or black soil of this District, in which Cotton, Korralu, White Jonaalu, Wheat, Bengal gram, &c., are cultivated, over an extent of about 10,90,000 acres of dry land, out of 60,29,000 acres in the District, there can be little doubt that the use of the implements of superior mechanism under notice would be attended with most beneficial results.

3. Any implements which may remain undisposed of after the above proposed experimental exhibition can be returned to the Remount Agent at Oosoor.

Exd. J. Wright.

18

From the Com. of South Arcot, dated Cuddalore, 6th June 1864, No. 93.

1. I am in receipt of the Board's Official Memorandum, No. 452 of the 31st May, calling my attention to their Proceedings of the 23rd March last, No. XXVIII, Board No. 1,787, on the subject of Agricultural Implements and Machinery.

2. The papers enclosed by the Board have had my attentive perusal, and were in my possession through the Press long before they reached me through the Board.

3. I do not exactly know what report is expected of me, nor am I prepared with anything definite.

4. The Board will know the difficulty there is in inducing natives to resort to any other but their accustomed modes of cultivating the land; and I look upon it, so far as any present results are to be looked for, that machinery would be valueless for all practical purposes.

5. That very great improvement is needed in almost all the native agricultural implements there can be no question; and I certainly think that the permanent exhibition of all the proposed kinds of new implements of agriculture at the Huzur station of every District to be open for the inspection and examination of all Ryots would be very valuable; and in this way an interest might be excited in the work of reform in this important matter. The value of such permanent exhibition would be much enhanced by the presence, at stated hours during the day, of some one competent to explain and exemplify the various uses to which these implements of agriculture were applied.

6. My own opinion is that to induce the more wealthy Ryots to initiate the introduction of improved agricultural implements, and eventually of simple machinery in view to the more profitable and efficient culture of the land, it will be necessary, as suggested in the preceding paragraph, that one specimen at least of each description of imported implement as well as machinery be furnished to every District for permanent exhibition, noting the cost of each and with some one to explain its appropriate use, and the prospective advantage to the cultivator by its substitution for the rude means at present employed for the same end.

7. So soon as such fixed exhibition is formed and opened, the public throughout every District might at first be invited to attend, after which it would no doubt become an object of considerable attraction to the innumerable Ryots who frequent the Huzur offices almost daily; and they would thus at their leisure be able to study the advantages offered by the new implements over their own present rude materials, and thus gradually an increasing interest in the subject would of necessity arise; and where a single Ryot might be unable to afford the outlay, he might be induced to join with others of his village; and in this way many experiments would, I dare say, be made, and at a joint risk, which no one would feel until each was led to purchase for himself; and I would further suggest that to facilitate the object in view it would be advisable to have one set of the native implements of each corresponding kind placed alongside the improved ones, in order that the superiority of the one over the other may be practically tested and displayed on the spot by which the Ryot could at once discover the great gain both in time and labor by the substitution of the latter over the former.

8. General F. Cotton's report to the Under Secretary of State appears to me so exhaustive of the subject, and that officer has so experienced and practical a knowledge of the peculiar wants of this country, and he is so well acquainted with the idiosyncracies of the native Ryot as well as with all the difficulties that oppose the introduction of any novelty however obvious an improvement, that, as far as I can see, nothing is left for revenue officers to do than to give their cordial support and co-operation in the important work by acting on all General Cotton has written, and by exposing to public view and inspection the specimens of the various implements selected by him as the most useful and serviceable for the Indian cultivator; and I do not really know that anything remains to be suggested; but I am decidedly of opinion that a mere temporary exhibition for a limited time of a certain quantity of machinery and of agricultural implements would be attended with little practical good; and that to ensure success to the object which the Government have at heart, and which, as I understand it, is the gradual but

permanent introduction of an improved system of agriculture, it is essential, as I have stated, to supply each District with one or more specimens of each article which it is sought to introduce as suited to the peculiar wants of the Ryots of India, and these specimens should be placed where they can be leisurely inspected every day throughout the year under the conditions and circumstances above mentioned; and I am sanguine that by this means a real interest will by degrees be manifested, and in time every Ryot in every District will have become enlightened and will practically have acquainted himself with the vast importance to his individual pocket of availing himself of the advantages thus offered to him; and where success attended the introduction by any wealthy Ryot of some new implement the news would soon spread and its adoption would be quickly followed by others, while all would thus have the opportunity, at their leisure and without haste or any of that excitement attending a mere temporary exhibition, of quietly examining everything and talking together over this and that point of difficulty and which in this way would become solved and cleared away.

9. I am aware that my proposal may involve a considerable outlay; still I presume that ultimately the results would be more than commensurate; at all events I feel very sure that practically it would secure the object in view far more speedily and far more effectually than by any mere casual exhibition such as that which I gather to be the intention of the Board.

10. If I am favored with any instructions, or with any particular views which the Revenue Board or Government may have, and which in their judgment will be calculated to ensure the carrying out the valuable project which has originated with His Excellency the Governor, and has the warm support of the Secretary of State, I shall be most prompt in giving effect to them; meanwhile I can think of no means so likely to answer the end arrived at as by the adoption of the course I have now suggested, and which I trust may not be deemed unworthy of consideration by the Board and Government, to whom I beg to submit my views with every deference.

11. I may add in conclusion that the introduction of wind-mills for raising water in substitution of Pycottahs and other native methods of irrigation has for some time past been under my consideration; but here again the great difficulty is the cost; for it is hardly possible to erect a wind-mill that would be of any real use at a less expense than Rupees 140. But it has occurred to me that in seasons of drought, and where in towns and large villages the scarcity of water is such as to necessitate recourse to distant sources of supply as is so frequently the case, the wind-mill might be very advantageously made use of; and I purpose shortly to try it in the Tirunamalai Taluk at my own expense, if the Ryots are unwilling to adopt it without practical experience of its usefulness.

12. A wind-mill set up at a river, tank, or other reservoir, say a mile or two distant from a town, would keep up a perpetual supply of water which could be retained in small reservoirs to be cut out or formed in different localities suited to the convenience of the inhabitants; and thus the people would be saved the great fatigue and labor which in so many places they now daily undergo, morning and evening, in order to keep their homes furnished with the necessary quantity of water simply for cooking and drinking purposes; and in cases of this kind a very small contribution from each householder would defray the entire cost of the wind-mill and of a man to look after it to the saving of their own time and labor as now expended.

13. But except for purposes such as I have described, I am not sanguine that many individual Ryots will be willing to incur the required outlay merely for the irrigation of their own lands. The Ryots as a class, the richest as well as the poorest, are so strongly wedded to their existing customs that it must be a work of time to do more than initiate any novel system however great and obvious the improvement. I am now putting up a wind-mill myself at a place some distance from this, merely to exhibit and endeavour to stir up an interest in the people around, many of whom can well afford the expense, and some I hope may be induced eventually to adopt this improved means of raising water for irrigation and all other purposes.

Rd. R. H. Lee.

From the Acting Collector of South Canara, dated Mangalore, 9th June 1864, No. 94.

1. I have the honor to inform you, that on the receipt of the Board's Proceedings of 23rd March 1864, I sent the Proceedings of Government to every one who seemed likely to be able to judge of the advisability of exhibiting in South Canara the agricultural implements in question. I annex a list of the implements which I think would be advisable to show here, and a copy of a suggestive letter from Mr. Dawson, the head of an English firm established here.

2. The Reverend H. A. Kaundinya, a Brahmin Missionary, who is also a land-holder in Canara and Coorg, states that, "I would buy those marked K K, if the Board will send them to Mangalore without extra charges, as I cannot but think that one or more of the instruments will be found more or less an unprofitable speculation; and as I am going to try them with a view to do good to the cultivating classes of Canara, I of course require one specimen of each." More good will be done by one landholder buying and using an implement, than by a dozen exhibitions: and I strongly recommend that the implements in question be sent round to Mr. Kaundinya at the public expense, as well as the specimens required for exhibition. He has before this tried to introduce new products, and better apparatus.

3. It seems to me that the simple exhibition of implements will be of no use; and that if any good is to be done, a native must be sent with them, who practically understands the working of them, and who can speak Canarese at least. Perhaps the best plan will be to send an intelligent man from here to learn the use of them at Madras. On his return some landholder at Mangalore may be induced to allow them to be tried upon his land, while an adjoining field is being treated with the Native implements. In some of the three crop lands, ploughing is begun while the old crop is being reaped: and on such lands a trial may be made of several implements at once. Due notice being given, and a general holiday allowed, a considerable assemblage of English, Germans, and Natives may be got together to witness the trial. This trial should be made entirely at the expense of Government; the bullocks being hired for the purpose.

4. It is probable that some of the Ryots present will afterwards be glad to borrow the implements for trial on their own fields, with their own cattle, without being paid for it. This should be allowed freely for perhaps six months. A charge might then be made for them, and for the wages of the men in charge, for six months more; and it may fairly be expected that people will be glad to buy them after that if they are found practically useful.

5. If no attempt is made to borrow the implements after the first trial, it will be worth while, I think, to continue to hire bullocks, and to take some trouble to get leave to use them on other people's land for a whole season, rather than let the experiment fail at once. The people will naturally wish to see what effect the strange implements have upon the crops, as well as upon the first processes before they take willingly to them. I think it is likely that they will fear, and reasonably fear, that by disturbing to a greater depth of soil (where this is possible) they will make the land so much more porous, that the usual supply of water will be too little for the crops. In many places it will be impossible to plough much deeper than the Natives do; the soil being only a few inches deep and resting upon crystalline or other unproductive rock.

6. I think the chief thing to be feared in this district is that the cattle will be found too weak; for they are wretched animals. But it would seem that the present is a good time to try the experiment, because such numbers of cattle have died and it is so difficult and expensive to replace them, that the people ought to hail any invention which will enable them to do more work with the cattle they have left.

7. The introduction of windmills would be a great advantage to this district, the demand for labor being greater than the supply. I do not mean the large windmills of England; but the smaller ones that are used in Holland and Egypt.

8. Milling mills and Duff's kitchens might perhaps be taken up in the time of scarcity, which is surely coming on, and if not, the Inspector General of Jails will probably be glad to take

them for the jail, where the kitchens at least would save the Government considerable sums in fire-wood. A hulling machine might perhaps be worked there at a profit, the cleaned rice being sold again.

Implements and Machinery recommended for Exhibition.

Wooden beam plough, with sub-soil body.

Grubber (wood and iron combined.)

American swivel plough, with extras.

K K. American light plough, not weighing more than 30 or 40 lbs.

Ordinary Indian plough, modified.

K K. Harrow.

Chain Harrow.

Horse Hoe.

Scythe.

K K. American wooden large rake used by men.

Threshing and winnowing Machine, altered for bullock draught.

Rice-hulling machine without power.

K K. Small hand chaff-cutter.

Cart with harvest rakes.

K K. Cooking stove, like that introduced by Dr. Duff at Madras, reduced to its most economical proportions.

Wind-mill.

(Signed) J. G. THOMPSON, Acting Collector.

ENCLOSURE No. 1.

From the Acting Collector of South Canara, dated Mangalore, 18th April 1864.

1. I now return the documents sent me with your letter of 13th instant, and have to remark thereon that I approve generally of the articles you have chosen, as you will see by my having placed my initials opposite to them.

2. The chief objection to the introduction of European and American implements is that the Natives of India do not know how to use them; and I doubt if their introduction will be attended with any success unless Government also appoint instructors to teach the Native agriculturalists how to use them. The implements marked however are not expensive, and if the Natives will not use them, I doubt not that European cultivators will readily purchase them.

3. In Indian agriculture, a much greater want than implements is water. Could not Government introduce and lay down a quantity of cast iron pipes to carry water from mountain streams to the sides of the lower hills to irrigate them. Sawing drills would be of little use here where the paddy is planted out; but I think the common English flail for thrashing corn might easily be introduced, and would be a great saving. Cotton Gins, if small, would be very useful. Winnowing machines may be made in India quite as cheaply as they can be imported. Improved ploughs cannot I imagine be successfully employed on the small patches into which paddy fields are usually divided; will natives submit to alter the arrangement of their field to admit of the plough being advantageously used. The simple importation of implements will in my opinion have little or no effect in improving Indian cultivation. Instructors must also be provided, and an agricultural school established to teach the people the use of the implements, and to explain to them the reasons why the new implements are better than the old. At first the most simple implements and machines should be introduced, and those of a more complicated structure should afterwards be gradually introduced.

Exd. R. H. Lee.

From the Collector of North Arcot, dated Palamanair, 10th June 1864, No. 126:—

1. I have the honor to acknowledge the receipt of the Board's Miscellaneous Circular, No. XXVIII, dated 23rd March 1864, communicating Proceedings of the Madras Government, dated 11th idem, No. 27, Revenue Department.

2. I have perused these papers with much interest, and wish I could hold forth any promise of practical results from an exhibition of the various useful agricultural implements therein described.

3. the state of depression consequent upon a long series of bad seasons is so general, and the state which would under the most favorable circumstances be available for such experiment in this District is so limited, that I fear any present attempt to improve local husbandry by such means would prove absolutely abortive.

4. I had occasion some little time ago to notice the extreme degeneracy of the farm stock of the District, and am afraid that this of itself would be a great additional obstacle to success, as most of the implements now sent out for exhibition appear to me to be beyond the cattle power available to turn them to practical account.

5. As the number of each variety of implement is very limited, I should be reluctant under the unpromising circumstances just noticed to curtail the means of giving the experiment a full trial in other Districts which may be better prepared to benefit by the exhibition of those specimens of science and mechanical ingenuity.

6. If however the Board find on receipt of the reports called for from other quarters, that the few simpler implements noted at the foot of this letter could be spared for exhibition in this District, I should have them placed at Wallajahpet or Vellore, and do all in my power to press their uses and advantages on the attention of the Zemindars and principal landholders of the District.

Memorandum.

- 1 Ransome's light plough, with sub-soil body to exchange for the mould board.
- 1 Grubber.
- 1 Improved East Anglian Harrow or
- 1 Chain harrow.
- 1 Horse hoe.
- 1 Common Scythe.
- 1 Aberdeen do.
- 1 American Horse rake.
- 1 Large Hand do.

I would like to add

- 1 Threshing machine, American, two horse power band, and
- 1 Rice Hulling machine *without power*; but these being only one or two of each, it is

not likely that any will be available.

(Signed) J. D. ROBINSON, Collector.

Exd. R. H. Lee.

From the Collector of Tanjore, dated Point Calimere, 15th June 1864, No. 199.

1. I have the honor to reply to the Board's Miscellaneous Circular, dated 23rd March 1864 No. XXVIII, communicating a Despatch from the Secretary of State for India regarding certain agricultural implements and machinery.

2. The subject therein referred to has had my mature and careful consideration, and in my humble opinion, I conceive that the attempt to introduce any of the implements or machinery alluded to would not at present be attended with much prospect of success. If I am not much mistaken, an attempt to introduce a light American plough was made many years, but the result was an utter failure, and I have been unable to learn even what became of the ploughs. The objections raised by the Mirassidar are twofold; first, the exorbitant prices of even the cheapest implements as compared with their primitive one; and second, the diminutive size and power of the cattle in the District, and I am free to admit that I think there is much reason in these objections.

3. I am however very much inclined to try, and do something in endeavouring to excite an interest amongst the people with regard to machinery and improved implements of agriculture; and with the approval of the Board, I would propose that the following implements should be sent to this District for the purpose of being tried in some of the large Chuttrum villages in the Tanjore and Pattukottai Taluks.

- 2 American portable wind mills.
- 1 Small thrashing and winnowing machine.
- 1 Small rice-hulling machine.
- 1 Grubber.

Exd. J. Wright.

22

From the Collector of Madura, dated Periakolum, 18th June 1864, No. 147.

In reply to the Board's Miscellaneous Circular, No. XXVIII, under date the 23rd March last, I have the honor to report that I have already applied to the Board for two Cotton Gins to be exhibited to the people of this District, which are to be supplied as soon as they are received. The Machines which may be most usefully exhibited in this District, are a simple Rice-hulling Machine, a simple Winnowing Machine for cleaning rice, and a simple Chaff-cutter.

Ed. J. Wright.

23

From the Collector of Madras, dated Sydapet, 19th July 1864, No. 330.

1. With reference to the Board's Miscellaneous Circular of the 23rd March last, No. XXVIII, forwarding the Proceedings of the Madras Government on the subject of the Agricultural Implements that had been ordered in England for this Government, I have the honor to state that I see but little prospect of many of the implements mentioned in the list, appended to General Cotton's letter, being suited to, or used by, cultivators in this District.

2. A few of them, I do think, might be acceptable, and those mentioned in the margin I should wish supplied for for this District. The Grubbers and Chain Harrow I could get drawn by bullocks and set to work

2 Grubbers.	2 Large Rakes.
1 Chain harrow.	1 Small Chaff cutter.
1 Horse hoe.	

in some fields, the property of Government, in the immediate neighbourhood of my Office at Home's garden. After exhibiting their usefulness for a short time, I propose lending one of the Grubbers and the Chain Harrow to Mr. Hanlin, an European land-holder at Saint Thomas's Mount, and the other Grubber to any influential Ryot who would engage to use and exhibit it. The Horse Hoe and large Rakes I would also exhibit on the ground of some other cultivator, and also in the neighbourhood of my Office; the Chaff Cutters I would exhibit at the Salt Cotaur of Home's gardens, where there are always numbers of country carts with bullocks waiting to take salt up-country; I propose to cut chaff for them and get them to purchase and use it instead of the customary straw. If the cartmen found the chaff to be more economical than straw, and to cause the saving of time mentioned in General Cotton's letter, they would soon disseminate the usefulness of the cutters throughout the District, and would be glad to purchase and make use of some.

3. Most of the implements mentioned in General Cotton's letter will, in my opinion, be found useful in this country, but only in peculiar Districts, the threshing machines for instance in Districts only where there are large tracts of paddy, and rice-hulling machines only at places of export.

4. I see General Cotton makes no mention of any machines for lifting water, which in my opinion is a mistake. I heard a short time ago from the Rajah of Vizianagarum that, at the late Calcutta Exhibition cheap machines of that sort were much sought after, and that he himself had bought one for 100 Rupees that raised thirty gallons of water a minute, 50 feet high, and one still more effective called a V pump, but a little more expensive. If the Board of Revenue should agree with me in thinking the omission of such machinery a mistake, I would with pleasure get more accurate information from His Highness the Rajah of Vizianagaram about these pumps, and the Board could recommend a few being sent out from England at the same time as the other machinery.

Edw. J. Wright.

From G. A. BALLARD, Esq., Collector of Malabar, dated Manjeri, 22nd July 1864, No. 176a.

1. I have the honor to acknowledge the Board's Miscellaneous Circular No. 28, dated 23rd March last, desiring me to report as to which of the machines mentioned in the list given in the papers covered by the Board's Proceedings could in my opinion be most usefully exhibited in Malabar.

On the receipt of this Circular I addressed the principal Revenue Officers in the District, as well as several private individuals, and it was solely because I wished to receive their replies before writing on the subject that my own reply was not sent in at once, for I could easily have said on receipt of the proceedings the very little I have to say now.

I have only yet received two answers to my many references, but as the Board have sent two reminders I will await others no longer.

2. I have but an imperfect idea of most of the implements mentioned in the list above alluded to, but it is only necessary to read the prices quoted against them to convince me that their exhibition in Malabar at present would lead to no practical result.

I cannot point to one implement the exhibition of which would, as far as I can judge, be likely to produce any effect.

3. Although many of the proprietors in Malabar are wealthy they seldom hold much cultivation in their own hands. The tenants generally are men of no capital. Neither landlord nor tenant is inclined to believe in the use of expensive implements.

The former will not offer, and the latter does not desire, help towards introducing them.

4. To some degree the prevalence of this feeling is due to prejudice and ignorance, but as far as I, not being a practical agriculturist, can judge, the verdict in favor of many of the simple implements now in use as against more complicated and expensive ones is a just and right one. Even the lightest of the ploughs, for instance, mentioned by Colonel Cotton would be absolutely unworkable in the small swampy divisions of the wet cultivation, or the steep terraced dry cultivation, or the thickly planted gardens of Malabar. Deep ploughing can be and is often obtained by repeated furrows in the same rake. Putting therefore expense out of the question, the light country plough weighing some 12 lbs. is more useful than a "Ransome and Sim" weighing 70 lbs. would be. And then the first costs 3 shillings on the spot, and the latter, it seems, 45 shillings in England.

And much the same remarks apply to the other field instruments.

5. Had the threshing machines been less expensive I should have asked for further information regarding them, and indeed would be glad to have further information now, for I believe that if a sufficiently cheap and easily workable threshing machine could be introduced it would be a considerable boon to the country.

But I do not see any reasonable prospect of advantage in having any of the expensive machines quoted in the list placed in this District for exhibition.

6. I think that great prejudices will have to be overcome before rice-peeling machines can be brought into general use.

7. Machines calculated to facilitate the preparation of the Coffee berry for transport and for the market, or those calculated to facilitate the preparation of the produce of the Cocoa-nut, whether as oil or fibre, would be, I think, the most likely to find favor in Malabar.

8. I trust I shall not be accused of under-valuing the wonderful effects of scientific agricultural implements under proper conditions, when I say that at present in Malabar far more waste of human labor is caused by deficient communications than by the absence of improved mechanical aid to agricultural operations. I ride from day to day without meeting a cart whilst I meet numberless stalwart men carrying the produce of the country on their heads.

If by the construction of roads and bridges that can carry carts these men cease to be beasts of burden and are sent to the fields, a far more rapid saving of labor would be effected than by the introduction of any improved agricultural machinery that I can imagine.

Exd. J. Wright.

From G. A. BALLARD, Esq., Collector of Malabar, dated Manjeri, 22nd July 1864, No. 176b.

1. I have the honor to acknowledge the Board's Miscellaneous Circular No. 28, dated 23rd March last, desiring me to report as to which of the machines mentioned in the list given in the papers covered by the Board's Proceedings could in my opinion be most usefully exhibited in Malabar.

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The former will not offer, and the latter does not desire, help towards introducing them.

4. To some degree the prevalence of this feeling is due to prejudice and ignorance, but as far as I, not being a practical agriculturist, can judge, the verdict in favor of many of the simple implements now in use as against more complicated and expensive ones is a just and right one. Even the lightest of the ploughs, for instance, mentioned by Colonel Cotton would be absolutely unworkable in the small swampy divisions of the wet cultivation, or the steep terraced dry cultivation, or the thickly planted gardens of Malabar. Deep ploughing can be and is often obtained by repeated furrows in the same rake. Putting therefore expense out of the question, the light country plough weighing some 12 lbs. is more useful than a "Ransome and Sim" weighing 70 lbs. would be. And then the first costs 3 shillings on the spot, and the latter, it seems, 45 shillings in England.

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If by the construction of roads and bridges that can carry carts these men cease to be beasts of burden and are sent to the fields, a far more rapid saving of labor would be effected than by the introduction of any improved agricultural machinery that I can imagine.

Exd. J. Wright.

From J. FRASER, Esq., Officiating Collector of the Godavery District, dated Cocanada, 27th July 1864, No. 190.

1. I have the honor to reply to the Board's Circular, asking which of the Machines mentioned in the Proceedings of the Madras Government dated 11th March 1864, No. 427, may with advantage be exhibited in this District.

No. XXVIII, dated 23rd March 1864.

2. There are already at work in the District a Rice-hulling Machine at Neelapalli, the property of Messrs. Linares and Co.; Oil Mills for extracting Castor oil, by pressure, from the seed at Cocanada and Neelapalli. The oil thus prepared is cold drawn and very pure, a steam-worked Circular Saw-mill at the Dowleshweram Workship. The natives can see these in daily operation.

3. We might introduce and exhibit with some hope of their being purchased.

1 Beam Plough.
1 American sub-soil do.
1 Horse Hoe.

1 Set Harrows.
1 Do. Chain do.
4 Scythes either common or two-handled.

Of course Europeans would have to be employed to teach the use of the Scythe; but natives so trained at Ossoor could teach others in other parts of the country.

4. What is much wanted in this District is a simple and effective machine for expressing juice from the Sugar-cane; any thing of this sort that did its work well, and was not high priced, would meet with a ready sale; and if a machine of this sort could be constructed so as to be driven by wind or water-power, it would I think be very useful for this District, and meet with purchasers.

5. There is one village in the Sub-division, named Doddipatla, the Munsiff of which is an intelligent and enterprising man. He now owns an English made Sugar-cane Mill* which he uses regularly; it is driven by water power.

His neighbours are so sensible of its superiority to their own clumsy contrivances, that they bring their canes from a distance of eight or ten miles to have the juice expressed by it, boil the juice down into jaggery there and then, using the cane refuse as fuel, and pay the owner of the English Mill one-fourth of the Jaggery as hire for the use of the Mill.

6. I believe that if there were three or four such Mills available in the District, they would be purchased at once by wealthy Ryots, as their use and benefits are known.

Exd. J. Wright.

* He might put me
of the Sangam River
for trial - or he might
help in getting others of
the English kind sent
out or made up here.

From G. THORNHILL, Esq., Collector of the Kistna District, dated Masulipatam, 15th August 1864, No. 168.

1. With reference to the Board's Miscellaneous Circular, No. XXVIII, I have the honor to report that on the receipt of it I wrote to the Zemindar of Vallur, whom I considered the most likely man to adopt improved machinery for agricultural purposes, to ask him if he would like to avail himself of any of the implements referred to in General Cotton's letter; but I have received no reply from him as yet.
Dated 23rd March 1864, No. 1,787.
2. A large hand-rake, a threshing-machine, and a small hand chaff-cutter strike me as the most likely implements to meet approval here.
3. The Cotton-gin promised by Government will, I have no doubt, be valuable.

Exd. R. H. Lee.

Enc. in a letter from
the Secy to the B^d of
Rev. to the Secy to
Gov & R. D. dated 2.nd
August 1884, No 5366 -

Rev = 2255/64.

File of replies from
Collectors re agricultural
implements &
Machinery.

1828-

See para 2 of f. O
11 March last, the
B^d of Rev. here in-
structed to report
to the Com. on the
cost of the work made
of turning to ac-
count the agricul-
tural implements
expected from England
& to be reported to
the Com. on the

The 18th Jan. the Com.
the replies to the Com.
and a list of the
list of the
every district except
the others, if some
thing -
It seems to me that
it would be better
to make the imple-

as completely as
he can, than to
scatter them ~~comple~~
~~ment~~ about the
country. The sets
might go on from
one District to
another.

Each set might
be composed as
follows -

- 2 Wooden Beam Ploughs.
- 1 Sower.
- 1 Harrow
- 1 Chain Harrow.
- 2 Horse Roes.
- 6 Scythes.
- 1 American Wooden Horse Rake.
- 2 Large Hand Rakes.
- 1 Threshing Machine. 2 horse power.
- 1 Hand Chaff Cutter.

He could make
up two such sets

- 2 Wooden Beam Ploughs.
- 4 Horse Roes.
- 12 Scythes.
- 2 Threshing Machines.
- 1 Chaff Cutter.

The Threshing Ma-
chines might be
allotted to Tanyine
& the phary & the
Chaff Cutter to
Madras - & the rest
to different Districts.
Say Kellor. Similarly
Cinnabara, Cuddalore.

This plan how-
ever would be necessi-
tate employing an
European overseer
with a few lascars
black travelling
set -
one set being kept
at Madras &

Northwards - the
from Salem South-
wards.

The 18th Dist. has
now seems good - on
that principle.

There are still 3
Rice Milling Ma-
chines, one with 2
two in front power.

The 18th propose to
build the lowest

to the factory. and
although a private
firm there already
possesses one, this
seems the best ar-
rangement - If suf-
ficient water is
available in Tanjore
it will be best there.
Otherwise Tanjore
high the bank one of
the smaller ones &
up the other - or
which the 18th

7

are.

No final arrange-
ments have yet been
made about the Steam
Mong's which will be
here probably by Decr.

I would suggest that
Mr. Barnell should
set up the Mong
here & work away
in the immediate
high labor look of
Madras. for a week
or so - notice being
given that the
District that the
Boys may come in
& see it.

Then go by Rail to
Vellur & do the same
for N. Dist close to
the Railway Station.
Then to Salem &

Shelton

No
 & Con. letre & back
 to possessor & blump
 up the farm - after
 which a few the
 & tour can be ar-
 ranged.

Order requested
 I do

I enclose in the 4 specimens in this Memo.
 - It seems desirable especially that the im-
 - plements should be exhibited in sets, though
 this course will entail some little expense.

Yes - we can only hope to derive benefit from
 these by exhibiting them as generally as possible.
 Instructions should be given to Collectors to make
 the fact of their working as public as possible -
 I think however that it would be advisable to
 point out that the machines will require
 power to work them, that men will have to be
 taught to use the levers &c and that the Collector
 must be asked to provide for these wants either by
 endorsing the Collector to supply the power, or by charging
 the Collector with the cost of the power.

Revenue Department
 Proceedings of the Madras Government
 under date the September 1864.
 Read the follow-
 ing letter from the Secy
 to the Board of Revenue

Submitting file
 of replies from Collectors
 to Boards, Circular inquiring
 which of the Agricultural
 implements promised by
 the Secy of State, and not
 required at Bussoor, could
 be usefully exhibited in sets,
 together with a statement
 showing the distribution
 which the Board would
 propose of the few availa-
 -ble implements.

(Here enter 20th Aug
 1864, No 536 of)

1. In para 2 of the
 Order of Govt 11th March
 last No 427, the Board of
 Revenue were instructed
 to report (after consulting
 the Collectors) the best or
 mode of turning to ac-
 -count the agricultural
 implements expected for
 Encl

England and not required
at Poosoor.

2. The Board now submit the replies of the Collectors, and a distribution list as proposed by them.

3. From this list it is seen that every district, except Malabar, is to be supplied with some or other of the various descriptions of implements available, and the distribution appears good, on the principle adopted by the Board.

4. It seems to the Govt, however, that it will be more conducive to the important object in view to make the implements up in sets as completely as practicable, than to scatter them about the country - the sets being sent on from one district to another.

5. Each set may be composed as follows. -
Wooden

2. Wooden Beam Bloughs.
 1. Grubber.
 1. Harrow.
 1. Chain Harrow.
 2. Horse Shoes.
 6. Scythes.
 1. American Wooden Horse Rake.
 2. Large Hand Rakes.
 1. Threshing Machine - 2 horse power.
 1. Hand chaff cutter - and it is observed that two such sets may be made up, leaving a surplus of
 4. Wooden Beam Bloughs.
 4. Horse Shoes.
 12. Scythes.
 2. Threshing machines.
 1. Hand chaff cutter.
- Of these, the Threshing machines may be allotted to Tanjore and the Godavary - the chaff cutters and a few scythes to Madras - and the rest to different districts say the Nore River - namely, Colimbatore and ^{Agri District} - of the two sets above referred to, one may start from Madras and

and work Northwards -
the other from Saline
Southwards. This plan in-
volves the necessity of em-
ploying a small establish-
ment to be in charge of, and
to travel along with the ex-
sets, and the Govt will be
prepared to sanction the
outlay requisite for the pur-
pose. They think that a
European Overseer with a
few lascar, will suffice
for each set, but on this
point the Board will be
requested to report ^{opinion} theirs.
There remain
also 3 Rice Hulling
Machines, one with, and
two without, power. The
Board propose to send
the largest of these to the
Godavery District, and
although a private
firm there already
possesses one, this seems
the best arrangement.
If however sufficient
water is available in
Sanyore

* with water wheel ^{set}
cost £250.-

30
Sanyore, the machine,
the Govt think, might
in preference be sent
to that District, other-
wise Sanyore should
be supplied with one
of the smaller ones, and
Nellore with the other - or
Sinnemelly which District
the Board name.

8. The Board will
be desired to take the
necessary steps for gi-
ving effect to this order,
reporting their Proceedings
for the information of
Govt. They will instruct
the Collectors to make
the fact of the working
of the implements as
public as possible, and
to allow the ryots freely
to witness the same. As
the Machines will require
power to work them, and
men will have to be
taught the use of the
scythes

31
seynes &c, the Collectors
should be requested to
arrange for providing
for these wants, either
by inducing the Land-
holders to supply the
power, or by charging
such a sum for plough-
ing or threshing, &c,
as may be sufficient
to cover the cost of
hiring power.

As regards the
steam plough, the Govt
would wish that it should
on arrival, be set up
and worked by Mr
Barwell in the immedi-
ate neighbourhood of
Madras for a shorter
period, notice being
given throughout the
District that the plough
may come in and wit-
ness the same. It may
next be moved (by Rail)
to

to Bellare and exhibi-
ted in a similar way
close to the Railway
station; then to Salem
and Coimbatore and
back to Poosoor to
plough up the farm
there - after which a
further tour will be
arranged.

B^d of Rev.

3

*Proceedings of the Madras Government, Revenue Department,
23rd September 1864.*

No. Read the following letter from W. HUDLESTON, Esq., Secretary to the Board of Revenue, to J. D. SIM, Esq., Secretary to Government, Revenue Department, Fort Saint George, dated Madras, 20th August 1864, No. 5,360 :—

SIR,

1. With reference to paragraph 2 of Government Order, dated 11th March 1864, No. 427, Revenue Department, I am directed by the Board of Revenue to submit a file of the Collector's replies to the Board's Circular Order inquiring which of the Agricultural implements promised by the Secretary of State and not required at Oosoor could be usefully exhibited in their Districts, together with a Tabular Statement showing the distribution which the Board would propose of the few available implements. The Government will observe that far more have been applied for than are available, and the Board while they have endeavoured to make a useful distribution, at the same time propose that the Collectors should interchange specimens at discretion after exhibition and trial in the original District, so that the implements may be seen as widely as possible, and that they should also notify their readiness to aid in procuring from England any implement which any landholder may wish to obtain for actual use.

2. The proposed distribution is as follows :—

GANJAM	1 Horse Hoe, 1 Scythe, 1 American Horse Rake.
VIZAGAPATAM	1 Plough, 1 Chain Harrow, 1 Scythe, 1 large Hand Rake.
GODAVERY	1 Horse Hoe, 2 Scythes, 1 Rice Hulling Machine with cleaning apparatus and Water wheel.
KISTNA	1 Horse Hoe, 1 Scythe.
NELLORE	1 Plough, 1 Chain Harrow, 1 Scythe, 1 Rice Hulling Machine without power, 1 Winnowing Machine, 1 Chaff cutter.
BELLARY	1 Grubber, 1 Harrow, 2 Scythes.
CUDDAPAH	1 Horse Hoe, 1 Scythe, 1 Threshing Machine with American 2 Horse-power band, 1 Chaff cutter.
KURNOOL	1 Plough, 2 Scythes, 1 Large Hand Rake.
MADRAS	1 Grubber, 1 Horse Hoe, 2 Scythes, 1 Large Hand Rake, 1 Threshing Machine with English Horse-power.
NORTH ARCOT	1 Plough, 2 Scythes, 1 American Wooden Horse Rake.
SOUTH ARCOT	1 Horse Hoe, 1 Scythe.
TANJORE	1 Plough, 1 Scythe, 1 Threshing Machine, Winnowing and Dressing Machine with 2 Horse-power.
TRICHINOPOLY	The Collector recommends that his District should look to Tanjore which is easy of access by rail and much more advanced in agriculture, to acquire knowledge of the implements.
MADURA	1 Horse Hoe.
TINNEVELLY	1 Plough, 1 Harrow, 2 Scythes, 1 Chaff cutter.
COIMBATORE	1 Rice Hulling Machine without power ; 1 Winnowing Machine.
SALEM	1 Plough, 2 Scythes.
SOUTH CANARA	1 Horse Hoe ; 2 Scythes.
MALABAR	1 Plough, 1 Scythe, 1 Large Hand Rake, 1 Threshing Machine (Winnowing and Dressing) with 2 Horse-power.
	The Collector recommends that none be sent, and Coimbatore, Salem, North Arcot, and Madras, can easily send implements later by rail, if desired.

3. The above distribution disposes of all the implements not required for Oosoor. The Board have been influenced in making it by considerations of the circumstances of the Districts as regards position, cultivation, and residents capable of appreciating the implements. They may mention that the fact of the German Missionaries in South Canara having among them gentlemen acquainted with agriculture in Europe, and holding land to a considerable extent in cultivation, has induced the Board to send there one of the Threshing Machines, which is asked for by the Acting Collector.

4. The Collectors should be instructed to have the implements fairly and frequently tested in actual field work in the near neighbourhood of their Head-quarter stations, and in different qualities of soil and kinds of cultivation; and unless they are satisfied by actual experience that from weight or other cause the implements are unsuited to the cultivation of the District, they should use their best endeavours to induce a proper appreciation of their advantages by the Ryots. They should report without delay when and why any implement is finally condemned in order that it may be tried elsewhere if deemed advisable.

5. The Board recommend that as the time for the Nellore Exhibition approaches, the Collector be authorized to obtain such of the implements allotted to Madras as he may desire to exhibit at work during that time.

No. ORDER THEREON, 23rd September 1864, No.

Miscellaneous.

1. In paragraph 2 of the Order of Government 11th March last, No. 427, the Board of Revenue were instructed to report (after consulting the Collectors), the best mode of turning to account the agricultural implements expected from England and not required at Oosoor.

2. The Board now submit the replies of the Collectors, and a distribution list as proposed by them. *The Bd propose*

3. ~~From this list it is seen~~ *and Trichinopoly should* that every District, except Malabar, ~~is to be supplied with~~ some or other of the various descriptions of implements available; and the distribution appears good, on the principle adopted by the Board.

4. ~~It seems to the Government, however, that it will be more conducive to the important object in view to make the implements up in sets as completely as practicable, than to scatter them about the country, the sets being sent from one District to another.~~ *might*

5. Each set ~~may~~ be composed as follows:—

- 2 Wooden Beam Ploughs.
- 1 Grubber.
- 1 Harrow.
- 1 Chain Harrow.
- 2 Horse Hoes.
- 6 Scythes.
- 1 American Wooden Horse Rake.
- 2 Large Hand Rakes.
- 1 Threshing Machine, 2 Horse-power.
- 1 Hand Chaff cutter—*and it is observed that two such sets may be made up, leaving a surplus of—*

- 4 Wooden Beam Ploughs.
- 4 Horse Hoes.
- 12 Scythes.
- 2 Threshing Machines.
- 1 Hand Chaff cutter.

Of these, the Threshing Machines may be allotted to Tanjore and the Godavery; the Chaff cutter and a few Scythes to Madras, and the rest to different Districts ~~say Nellore, Tirupattur, Coimbatore and Cuddalore~~ *at the Bd's discretion*

6. Of the two sets above referred to, one ~~may~~ start from Madras and work northwards, the other from Salem southwards. This plan involves the necessity of employing a small establishment to be in charge of, and to travel along with the sets, and the Government will be prepared to sanction the outlay requisite for the purpose. They think that a European Overseer with a few lascars will suffice for each set, but on this point the Board will be requested to report ~~their opinion~~.

7. There remain also three Rice Hulling Machines, one with, and two without power. The Board propose to send the largest* of these to the Godavery District, and although a private

* With water wheel, &c., cost £250.

firm there already possesses one, this seems the best arrangement. If however sufficient water is available in Tanjore, the Machine, the Government think, might in preference be sent to that

believe

21
District; otherwise Tanjore should be supplied with one of the smaller ones, and Nellore with the other, or Tinnevely, which District the Board ~~will~~ ^{with the} ~~shall~~ ^{shall}

8. The Board will be desired to take the necessary steps for giving effect to this order, reporting their Proceedings for the information of Government. They will instruct the Collectors to make the fact of the working of the implements as public as possible, and to allow the Ryots freely to witness the same. As the Machines will require power to work them, and men will have to be taught the use of the Scythes, &c., the Collectors should be requested to arrange for providing for these wants, either by inducing the Land-holder to supply the power, or by charging such a sum for Ploughing & Threshing, &c., as may be sufficient to cover the cost of hiring power. as

9. As regards the Steam Plough, the Government would wish that it should, on arrival, be set up and worked by Mr. Barwell in the immediate neighbourhood of Madras for a short period, notice being given throughout the District that the Ryots may come in and witness ~~the same~~ ^{its working}. It may next be moved (by Rail) to Vellore and exhibited in a similar way ~~near~~ ^{near} the Railway station; then to Salem and Coimbatore and back to Oosoor to plough up the Farm there; after which a further tour ~~will~~ be arranged.

(True Extract.)

Secretary to Government.

To the Board of Revenue.

A certain number
of trained men will
be required to work
the plough under Mr
Barwell. On this point
the B^d will consult
Mr Barwell & make
the necessary arrange-
ments. The set of
implements intended
for the Southern Districts
might be sent along
with the Steam Plough
so far as it is taken

[Faint, mostly illegible handwritten text in the upper left quadrant, possibly bleed-through from the reverse side.]

[Faint handwritten text in the lower left corner, possibly bleed-through from the reverse side.]

Revenue 1864 Dept.
Pro: of Govt for October.

N^o 1828.

Pro: of the Madras Govt.
Dy. 4th October 1864.

Pro No. 128-129
11-3-64

From the Sub-Secretary to Board
of Revenue 21st November 1864 (1863)

Issuing orders on
the exhibition of the
Agricultural implements
from District to District.

N^o 22 & 23

11-3-64

11-3-64