M.R.O. 14—10,000—21-4-22.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. E 1017 Press ~~Mis.~~

Dated 29th July 1859.

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department, from 23d to 29th July 1859.

No. 68. Read the following letter from Mr. A. T. JAFFREY; to the Chief Secretary to Government, of Fort Saint George; dated 1st July 1859.

I have the honor to enclose for the perusal of the Right Honorable the Governor. A Memorandum on impregnating Cotton, which I trust contains matter of some slight value upon the subject of *Cotton* to justify my forwarding *it* for the use of Government.

Memorandum on the Hybridizing of Cotton &c.

As the improvement and increase of Cotton cultivation is occupying a prominent place amongst the passing events of the day, information from all available quarters will undoubtly be sought for.

And as the Theory of cross-impregnating the variety cultivated in this country, with exotic varieties of Gossypium or (vice versa) has been brought under consideration a few practical remarks at the present junction may be useful.

It is well known to such as are acquainted with the horticultural world that important advantages have been obtained by cross-breeding, the ametioration of fruits, Flowers, and vegetables, in England and elsewhere has proved beyond a doubt that the vegetable kingdom is susceptable of receiving sexual impressions when the plants manipulated upon combine a versimilitude of structure &c., or to say when species of the same genera are acted upon such as Cotton with Cotton, apples with apples &c.

Hybridizing is probably one of the most important items in horticulture in a commercial point of view, and with all due deference to the suggestions of impregnating varieties of Cotton for the purpose of improving the staple article of the country, and obtaining hardier varieties, a difference of opinion it is trusted will not be considered in the light of attempting to throw cold water, upon the theory brought forth by them, no doubt Cotton will receive sexual impressions equally with other genera and species in the vegetable kingdom, and could undoubtly be multiplied into inumerable varities. What could be accomplished, would no doubt be invaluable towards proving the affinity of the different Cottons under cultivation in various parts of the world,—decided that the properties of the native cotton could be improved by intermixture with exotic varieties and that a quality of Cotton was produced worth double the value of that cultivated at present. A query arises that requires an answer; has the qualities so produced become amalgamated with the structure and jucies of the psuedo—variety so as to ensure a perpetuation of the improvement obtained.

The modes adopted to perpetuate the improved fruits, and flowers, in other countries raise a doubt. In the *generality* of cases the seeds obtained from the improved varieties do not perpetuate the improvement—they either go back to the original or produce inferior sub-varieties, thus proving that the seed obtained from the impregnated plant alone conveys the change, and the only mode of keeping up the varieties obtained is by cuttings and grafts and such like operations. Upon this subject information is much wanted, herbs, and vegetables, have been improved and the improvement continues from carefully preserved seeds, but how or why the same does not in flowers or fruits remains in obscurity; drawing conclusions from what has been done by physiologists in investigating and eliciting information on the subject of cross—impregnation, a doubt as to the practicability of producing hardy or acclimatizing exotic varieties of cotton certainly exists, at least in so far as obtaining a permanent improvement; that cross-impregnation has been one of the triumphs of cultivation cannot be doubted, a trial of cotton might certainly be made. Science would be satisfied and an impulse given to commerce if an improvement which could be perpetuated was obtained on an article of so much value to England as cotton.

Whatever plan may be adopted towards the furtherance of increasing the value and cultivation of cotton in India the time has certainly arrived to steer by the "infallable compass of truth" hitherto the subject has had sufficiency of ideas expended whether they were foolish or wise; ideas that have not at any rate proved progress towards the desired end.

Other plans might be adopted towards acclimitzing exotic varieties of Cotton viz. growing

the seed for a year or two on poor soil in a medium climate, seed might even be raised in Madras or a similar climate, before cultivating it. One point connected with this subject has probably not been investigated viz. has a field of native cotton while in flower and seed been carefully and scientifically examined. Observations taken as to whether there were not more than one variety in the field of a more robust habit, and producing better Cotton than the others, this matter is worthy of consideration, such occurrences are not unfrequent in the vegetable kingdom, and may haps a superior variety is at the door, while traversing the universe for a better.

If impregnation is to be tried a few words may not be out of place regarding the process which is exceedingly simple.

The greatest part of flowering plants have the sexual organs within their flowers. In the Nt. Ord, *Malvaceæ* to which Cotton belongs the male organs are attached to the style or female organ much care would be required in impregnating them, from the close proximity of the stamens to the stigma, and the short duration of the flowers, probably the safest way to proceed in this matter would be to open the flowers carefully before they are developed and remove the stamens with a pair of tweezers before they shed their pollen, after the flowers open the stigmas will require to be watched till they appear moist when the pollen from the variety (the properties of which is required) should be applied in sufficient quantity to cover the stigma completely. In order to prevent accident from bees or insects each flower impregnated should be covered with a bag of muslin, or lace, and marked. The operation must be conducted in dry calm weather, notes should be carefully taken at the time as to the varieties used on the various plants acted upon. If the slightest amount of impregnation has taken place from the original pollen of the female used as the seed produce, there is no chance of success, the greatest care is necessary to prevent this and to cause a complete amalgamation of properties. It would be advisable to remove all the flowers from the impregnative plant, but such as have been manipulated upon so that every chance towards the production of a robust habit, and good seed, may be given, success may not be the invariable rule, though it is very likely to be obtained in a few cases, probably one or two good crosses—in one thousand plant, produced.

In conclusion the introduction of foreign seed is a work of time, and has hitherto proved of doubtful utility. Impregnation is more doubtful still, but the improved cultivation of the native cotton can go on at once, observations can be made if it does not contain improvable elements within itself, "*time is money,*" and before a complete change could take place in the cultivation and acclimatizing new varieties years will have passed away and it is very uncertain if success would be attained at the end.

(Signed) A. T. J.

No. 69. ORDER THEREON, 29th July 1859, No. 1017.

Referred to the Agri-Horticultural Society for such notice as it may deem necessary.

(Signed) W. C. SIM,
Acting Deputy Secretary to Government.

To

The Chief Secretary to Government
of Fort St. George

Sir

I have the honor to enclose for the perusal of the Rt. Honble the Governor – A Memorandum on impregnating Cotton – which I trust contains matter of some slight value upon the subject of Cotton: to justify my forwarding it. for the use of Government.

I have the Honor to be
Sir
Your Obt. Servant

Madras,
July 1st 1859

28 Strinbes Street

matter in the first six pe-
to the Ajse Work book - which he
has already taken slips for
Toby Mr Murales very
suggestions favourable sug-
gestions JG

Mr G.

Revenue 1859 Sept.
Pres: of Govt 29 July.

No. 1229.

From Mr. A. J. Jaffrey.

Dated 1st
Recd 4 } July 1859.
1 Encls.

Submits a Memo.
on impregnating
Cotton.

Under Written

No. 6876 9.

C13 July R22.

No. 1017.

Agri. Horticultural.

Refd. to the ~~Committee~~
Society
~~Board~~, In such a Rate
as he may deem necessary

H. Reid.

Fort St. Geo. 29 July 1859

Copy to Agri. Horti. Society. Desp: to
" Mr Jaffrey