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SEED SELECTION SERIES,

I

BROACH COTTON.

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INTRODUCTION.

It is proposed to publish a series of "Simple Instructions in
ed Selection" for the staple crops produced in the Bombay
esidency. The present publication on Broach Cotton forms the
st of the series but it is hoped that others will shortly follow on
heat and Jowar.

T. F. M.

Poona, 1st June 1911.

SIMPLE INSTRUCTIONS IN BROACH COTTON SELECTION.

The first feature which catches the eye when passing through a cotton field is the remarkable disparity which exists between the different plants both as regards their size and shape as well as in respect to the number of bolls upon the branches. In this connection the contrast is greatest between the plants occupying the body of the field and those situated on the outside border.

The question therefore arises whether these differences are all due to accidental causes or are natural and transmitted from parent to off-spring. The answer is that both of these factors are at work. There can for instance be no doubt that the plants in the outside border are large because of their situation which enables them to draw moisture from the adjoining fallow area and permits of greater light and room.

On the other hand it has been established by experience that many of the plants are superior because their parents before them were likewise superior and it has been found in practice that the yield per acre can be greatly enhanced by selecting seed from superior plants.

How the selection is done.

The best type of plant to select in Guzerat is one having the following characters (*vide* plate I) and care should be taken not to select a plant which owes its superiority to some accidental cause such as described above :—

- (1) The plant should be healthy and free from disease of any kind.
- (2) The plant should be robust and vigorous in growth but not too tall.
- (3) There should be ample lateral branching in all directions and the first branches should start from just so high above the ground level as will prevent the bolls from coming in contact with the soil, and the lower branches should be longer than the upper.
- (4) The bolls should be numerous and distributed well upto the tips of each branch.
- (5) The bolls should be large in size and when ripe should open wide thus setting free the kapas in such a way as to become fully matured and easily picked.

- (6) The kapas should be taken out of a few bolls and the fibre should be drawn out from the seed so as to see whether the ginning percentage will be high and the staple long and strong and of good colour, and only a plant fulfilling these conditions should be selected (*vide* plates IV and V).
- (7) Seed should be saved only from the best bolls and not taken from very early bolls which sometimes open prematurely. The first two regular pickings provide the best seed.

The best way to commence seed selection is to select a few of the best plants as described above and then reject all but one, *viz.*, the best of these plants. Seed of this plant should be carefully sown by hand in the following season and all the plants which are inferior owing to accidental causes such as crowding or water-logging should be rejected. The seed of the remaining good plants should be kept for sowing and soon there will be sufficient seed to sow one acre.

What results can be secured by such selection.

It has been found that when selection is carried out on these lines greatly increased profits can be secured. Firstly instead of having a field with all sorts of varying plants the cultivator who selects his seed will have a crop in which the plants are mostly all of one shape and size and prolific, and hence the yield of kapas will be greatly increased. In the case of seed distributed from the Surat Farm in 1909-10 it was estimated in some cases that the yield of kapas was 100 lbs. per acre greater than that grown from ordinary seed. This was worth Rs. 17 and represented a net profit as the cost of cultivation, where the latter is good, need not be increased. In addition to this however, the enhanced ginning percentage and good fibre enables the cultivators to secure the best prevailing price in the market.

There is still one more advantage and this is a very material one. The plants grown from selected seed are not only uniform in appearance but possess the character of uniformity in the opening of their bolls so that the picking can be done much more economically. It has been estimated that where 5 pickings are necessary in the ordinary crop, 3 will suffice in the case of the crop grown from selected seed.

EXPLANATION OF PLATES.

The following illustrations were obtained from plants grown on the Surat, Government Farm, in 1910-11.

Plate I.—This illustration embodies the good characters tabulated under numbers 1 to 5 above.

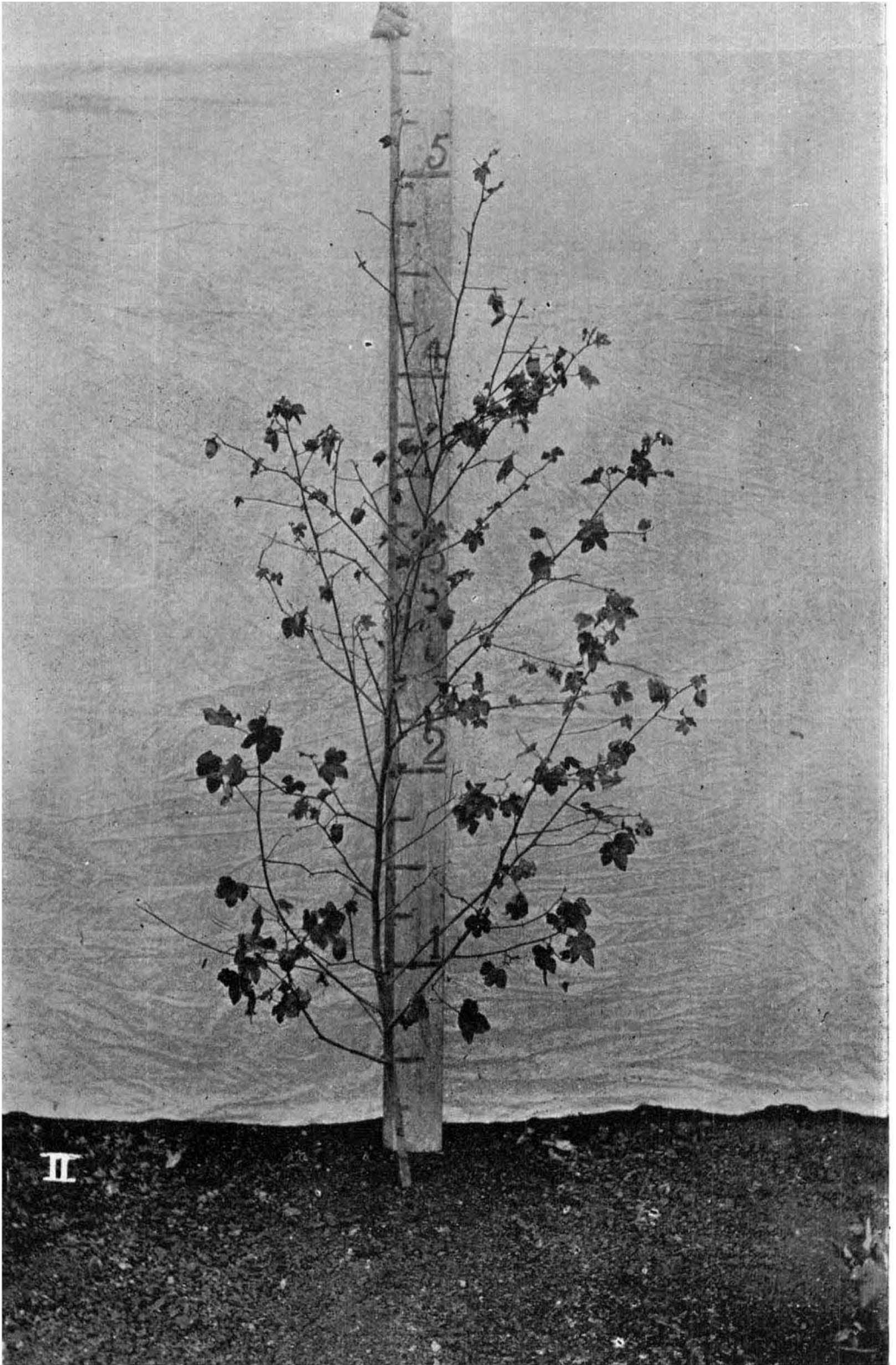
Plate II.—This is an illustration of a bad type of plant and one which should be avoided in selection. It is too tall and the lateral branching too restricted, while the branches themselves are slender and poorly provided with bolls.

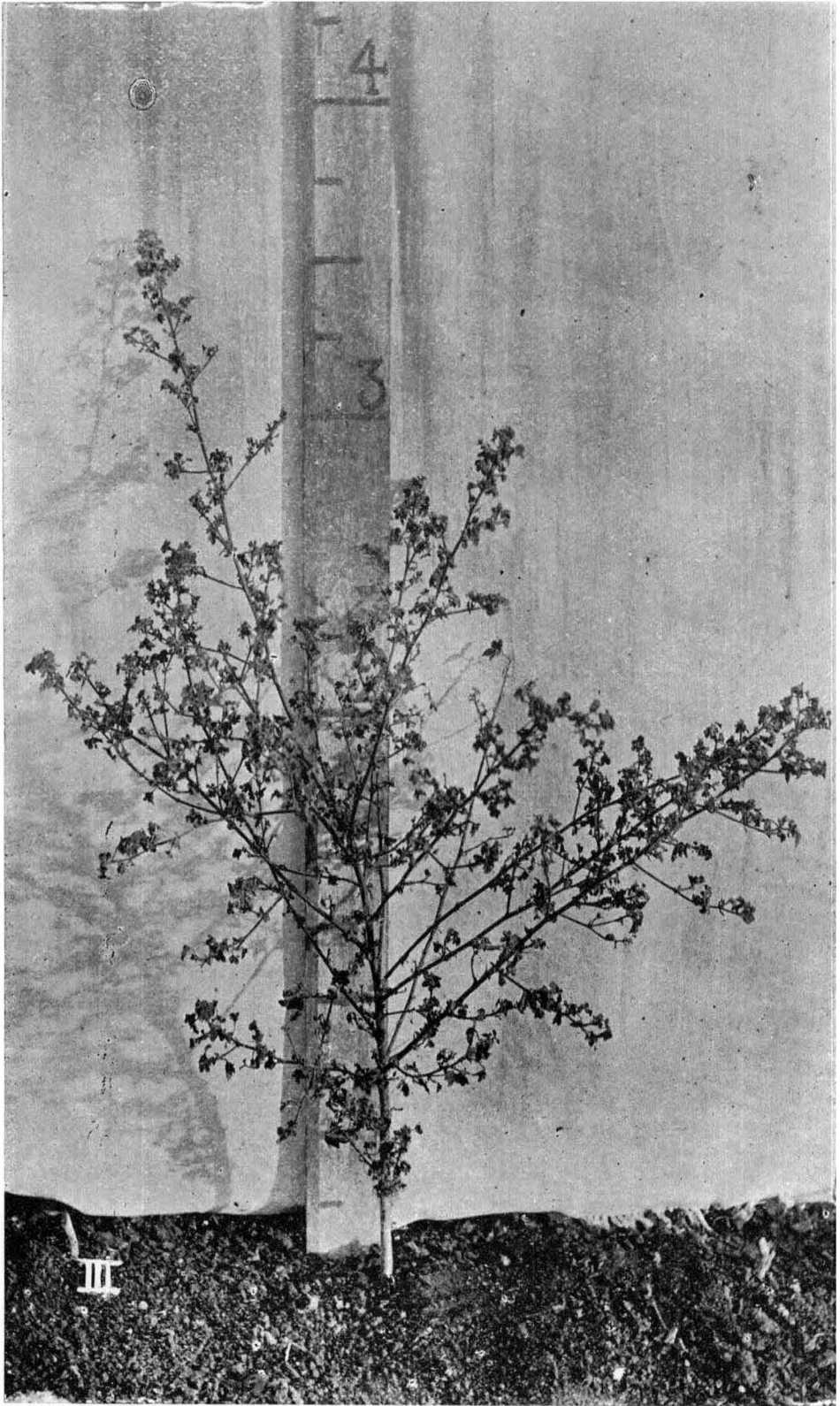
Plate III.—This is an illustration of a completely barren plant in which the leaves have become dwarfed; such plants are fairly common but it frequently happens that only a part of the plant as for example one branch or one side becomes barren while the remaining branches remain apparently healthy and produce fruit. It is obvious that seed should not be secured from such plants.

Plate IV.—This illustration shows what a very great variation there is in the ginning percentage of kapas produced by different plants. The specimens were obtained from two plants produced on a plot sown with bazar seed.

Plate V.—This illustration shows how greatly the fibre produced from different plants varies in length.





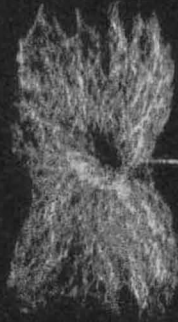


BROACH

Long fibre

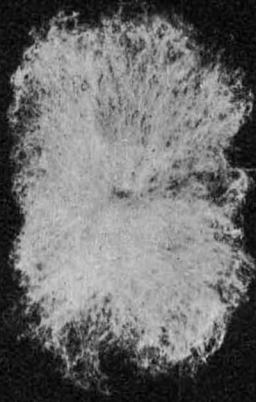


short fibre

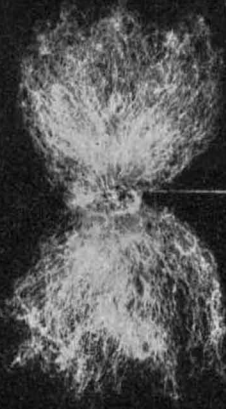


BROACH

High-ginning



Low-ginning



III