Introduction.

The immediate possibilities of pure line selection in rice are nowhere near exhausted. In the past selections have been made at the I.C.T.A. farm from the popular local variety - Kalyaman, the three outstanding pure line selections being No.29, No.38 and No.11. The present experiment was designed by Prof. Wood and Mr. Paterson to test the performance of these three pure lines, the original variety Kalyaman and two other varieties No. 4 and No.7.

Description of Pure Lines and Varieties.

Kalyaman Special - a very popular variety. White - Relatively long, thin cylindrical grain. Has a tendency to break on husking. The average dimensions of the paddy run to 10\(\frac{3}{4}\) - 11 m.m. in length, 2\(\frac{1}{2}\) - 3 mm in width and about 2 m.m. in thickness. There is no dark red pigment either in the husk or the cuticle surrounding the kernel.

No.29 - White rice. Very much like Kalyaman, though not quite so long. Doesn't break. As paddy it is 9\(\frac{3}{4}\) - 10 m.m. long, 3 m.m. wide and 2\(\frac{1}{4}\) - 2\(\frac{1}{2}\) m.m. thick. The husk is a shade darker and a very small percentage of the grains have red cuticle, indicating that the selection is by no means quite pure. It is early maturing and yields well. Its performance in previous years has been reported very favourably (vide the cultivation sheets).

No.38 - White rice. Same colour as Kalyaman but a shade longer and wider. 11 to 11\(\frac{1}{2}\) m.m. by 3\(\frac{1}{2}\) m.m. by 2\(\frac{1}{2}\) m.m.

No.11 - Has a very distinct appearance. Much shorter and stouter than Kalyaman. The average dimensions of the paddy run to 8 m.m. in length, 3\(\frac{1}{2}\) m.m. in width and 2 m.m. in thickness. Dark red pigment is contained only in the husk and not in the cuticle surrounding
the kernel. This selection is supposed to have originated from a solitary short plant in a field of Kalyaman rice.

No. 4 — Very much like No. 38. It appears to be a mixture of different strains. Some have white husks and white grains, some white husks and red grains and a very small proportion red husks and red grains. The white paddy is about $11 - 11\frac{1}{2}$ m.m. long, 3 m.m. wide and 2½ m.m. thick. The red paddy on the other hand is about 9 m.m. long, 3 m.m. wide and 2 m.m. thick.

No. 7 — An awned variety with red cuticle covering the kernel. Very late maturing. Grows to a considerable height, about 6½ feet. Has all the undesirable qualities. Worthless from the millers point of view. The dimensions are 8 m.m. long, 4 m.m. wide and 3 m.m. thick. The awn is on the average 25 m.m. long but there is a great deal of variation.

Design of the Experiment.

The Randomised Blocks layout was adopted. Each variety was replicated three times and therefore there were five blocks with six plots on each Block.

Location. Rice Beds Nos. 10, 11, 17, 18, and 19. Each bed was treated as one Block. The beds were all approximately of the same width namely 50' but their lengths varied between 82' and 90'. It was decided to start planting at the eastern end in each Block and to fill the extra space available after the 6 plots were marked out, with the same variety planted in the adjoining plots (on the Eastern side).

Two plants were set per hole one foot apart in rows one foot wide. After allowing the necessary discards at harvest to eliminate border effects, the ultimate size of plots for yield purposes worked out exactly 25' by 25' or approximately $1/70$th of an acre.

Manuring. 5 lbs. of Leunophos was broadcasted per Block after first flooding and another 5 lbs. when the water was first drawn off after planting.

DATE OF PLANTING

Beds 17, 18, 19 on 6th July 1921

18th on 8th July, 1931