One other observation made during last year deserves mention in this connection. In the Central Farm Orchard where Batavian oranges and tomatoes were grown side by side, the moths showed distinct preference to tomatoes as against oranges. There was practically no attack on organges as long as the tomato crop was in the field but when this was pulled out in October the moths began to pay their attention to oranges. If these observations are confirmed by this year's studies we will have a cheap and effective remedy against this very serious pest of oranges in almost all fruit growing areas in this Presidency, i. e., growing tomato as a trap crop in such a way that the fruiting season may coincide with that of citrus so that the moths which are attracted to them may be captured and destroyed. We would request the district staff to give this a trial and let us know the results.

AN AFRICAN *RAGI*, ELEUSINE CORACANA GAERTN.—THE FINGER MILLET—WITH A VIOLET PURPLE COLOUR

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In a previous article (Rangaswami Ayyangar and Krishna Rao, 1931) three major types of purple pigmented plants have been described and their inheritance worked out. They are Purple, Dilute Purple and Localised Purple. In a subsequent article (Rangaswami Ayyangar, et al., 1933) a fourth type, Medium Purple was described. The mode of inheritance of all these types of Purple has been given. Factors P, I_1, I_2, H_1 and H_2 are involved in the above. The commonest type of Purple Pigmented Ragi is of the genetic constitution $P=I_1\ I_2\ H_1\ H_2$.

This article describes a fifth type of purple, viz., Violet Purple, and the mode of its inheritance. This Violet Purple was first met with in an African variety from Nyassaland. It was noticed that the plants had a tint of violet and were coloured deeper than the usual purple plants. Not being very vigorous, this purple was suspected to be a type of distress purple that would disappear with acclimatisation. Type plants were carried forward and it was noticed that even the next year the same tint of violet with the same un-economic growth existed. It was found that this type of purple manifested itself in all the places at which the normal purple manifests, with this difference that in the glumes the violet tinge added to the prominence of the purple. In the amount of purple this new type and the ordinary Indian type are about equal, only they differ in the quality of the same, which in the African type takes on a violet tinge so that the new type can fittingly be designated Violet Purple. The absence of this type of

Purple in the wide ragi-growing areas of this presidency coupled with the comparatively un-economic nature of this Violet Purple variety makes it probable that the dropping out of the dominant gene responsible for its presence, marks one of the stages in the evolution of the more recent and economic cultivated varieties. The lingering of this type in a part of Africa is therefore interesting in throwing light on the origin and affinities of the finger millet.

The relationship of this type of purple to the others:

(A) Purple,
(B) Medium Purple,
(C) Dilute Purple,
(D) Localised Purple,

and (E) Green (non-purple pigmented)—allelomorphic to P—was pursued and suitable crosses made. In every case the F_1 was a Violet Purple. The following segregations occurred in the F_2 generation.

Nature of the crosses.	Generation.	No of families studied.	No of plants obtained in								Nearest theoretical ratio.	Value of P.
			Purple		Medium Purple		Dilute Purple		Localised Purple	Green		
			With Violet	Without Violet.	With Violet	Without Violet	With Violet	Without Violet				
A. Violet Purple × Purple	F1		*									
	F2	2	77	26							3 : 1	1
B. Violet Purple × Medium Purple	F1		*									
	F2	1	12	27	7	4					45:15:3:1	>·1
C. Violet Purple × Dilute Purple	F1		*									
	F2	2	158	70			65	20			9 : 3 : 3 : 1	>·2
D. Violet Purple × Localised Purple	F1		*									
	F2	2	188	53					78		9 : 3 : 4	>·5
E. Violet Purple × Green	F1		*									
	F2	2	142	44						71	9 : 3 : 4	>·3

The 9 : 3 : 4 ratio in (D) above has to be explained. This 9 : 3 : 4 is only like the others a 9 : 3 : 3 : 1 in which the end two groups are not easily separable owing to the poor manifestation of pigmentation, so that whether a Localised Purple has Violet or not is difficult to tell; so localised and light is this purple.

The existence of this Violet factor independently of the presence of the P factor has been demonstrated by designing crosses in which a number of non-pigmented plants picked out from (E) above were mated to a Localised Purple. As expected some of the crosses gave F_1 plants, Violet Purple. The least dose of Purple was enough to activate the latent violet in the Green.

It will thus be seen that a dominant gene designated *Vt* imparts a Violet tinge to purple and makes it Violet Purple. In its absence *vt* the plant is of the ordinary purple type. This dominant gene could be

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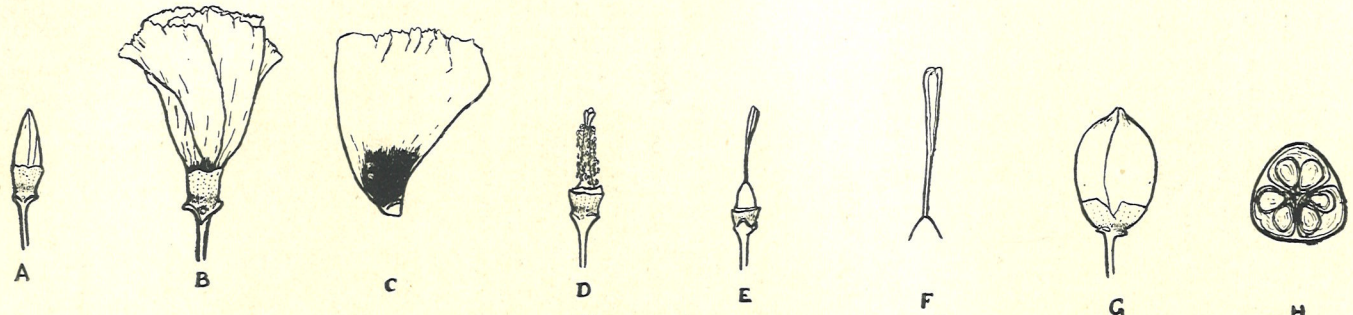

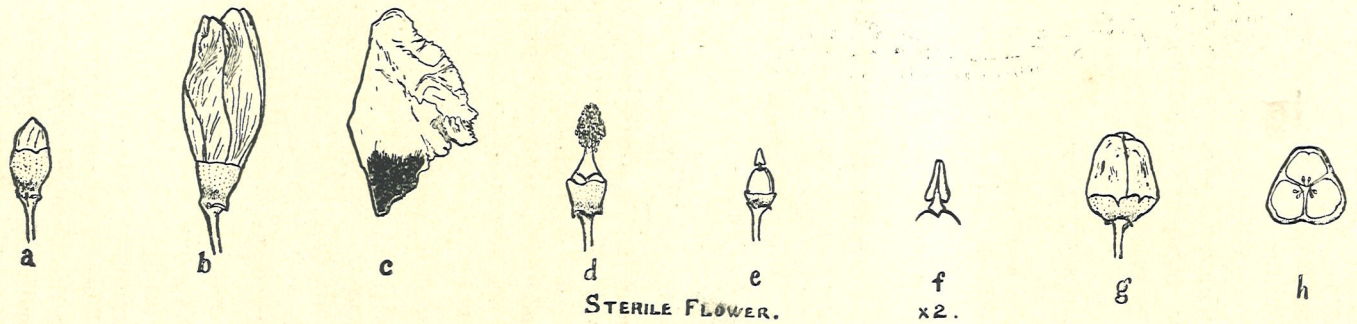

super-imposed on every other manifestation of purple; only in the case of the Localised Purple its effect is feeble.

Summary. A dominant gene *Vt* found in African varieties colours the ordinary purple in the *Ragi* and makes it appear Violet Purple. *Vt* is a simple dominant to *vt* which is present in all local Indian varieties of *Ragi*. *Vt* could be detected in all grades of Purple, excepting Localised Purple on which its effect is feeble. It could be present in a Green (non-purple pigmented), lacking the factor P. The factor *Vt* is not conducive to economic growth under Indian conditions.

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A HERITABLE CASE OF FEMALE STERILITY IN HERBACEUM COTTON

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A type of female sterility was described in 1934 (Kesava Iyengar, 1934), occurring in a pure strain (No. 1281), of *Gossypium herbaceum, L.* grown at the Agricultural Research Station, Hagari. The inheritance of this phenomenon was pursued during 1934, 1935 and 1936. In this paper are presented the morphology and the inheritance of these sterile plants.

The sterile plant. The sterile plants are perfectly healthy throughout their life history. The size, shape and colour of the leaves are all normal. Differences between the normal and sterile plants can be recognised only from the flower-bud stage onwards. The buds of the latter are distinctly swollen at the base and rounded at the tip, while those of the normal flower are more pointed.

The opening of the corolla is noteworthy. In a normal cotton flower the corolla has a contorted æstivation. The flower buds open normally (under the conditions obtaining at Hagari) at 10 a. m. The petals gradually untwist and liberate their upper margins completely. The flower, on complete opening, presents a campanulate form with the staminal column prominently standing out in the centre. The stigmatic head protrudes through this column. The extent of protrusion of the stigma is a varietal characteristic. In the case of the sterile flowers the opening is modified considerably. As a rule,