This rare type of manifestation occurs in the group *Sorghum conspicuum*, Snowden, from Tanganyika in Africa. One of the varieties from the Rufigi District in the Tanganyika territory, showed this character. In it, one natural cross occurred (A.S. 5939) without the manifestation of purple pigment during flowering. This was sown and the F_2 gave 134 plants without purple and 48 plants developing purple on the glumes at flowering time. From this an F_3 generation was raised. One selection which developed purple, bred pure. Of the three selections with no purple, one was pure for green glumes at flowering time and the two others segregated giving a total of 258 plants without purple and 88 plants with purple at flowering time.

It will thus be seen that a new gene, African in origin and confined to the group *S. conspicuum* has been met with. The effect of this gene is to develop a light purple pigment at flowering time, vanishing with the end of flowering. This character has proved a simple recessive to the common unpigmented condition. Whereas many dominant genes producing purple pigment in various parts of the sorghum plant and at various times in its life-cycle have been traced to Africa, this African recessive purple pigment gene is of added interest.

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May 8, 1940.

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[1] *Curr. Sci.*, 1937, **5**, 590.

The Occurrence and Inheritance of Purple Hairs on the Spikelets of Sorghum

The generality of sorghums are hairy in some part or other of their spikelets. This hairiness shows best on the glumes. The pedicels of the pedicelled spikelets and the callus are generally hairy. The glumes may be glabrous, and when hairy, may vary in the intensity of the hairiness. When most intense, they are felty. When sparse, the hairiness is confined to the top third of the glume, and when sparser still, to a fringe of hairs at the edges. These hairs are usually hyaline. In stray cases these are purple pigmented and show best at flowering time after which the pigment fades away. Purple haired spikelets occur mostly in African varieties. Some Indian varieties and the wild sorghums have also some types with purple-haired spikelets. When the spikelets are hairy, it is usual for the nodal band (the soft tissue at the very base of the leaf-sheath) and the auricular junction (the light-coloured tissue connecting the base of the leaf-blade with the top of the leaf-sheath) to be hairy also; but when the spikelet hairs are purple pigmented, such pigment does not affect the hairs on the nodal band and the auricular junction.

A.S. 4212 is a selection from a North Rhodesian variety and its spikelets have purple hairs. A selection from this, *viz.*, A.S. 5896, which was obviously a natural cross, segregated for this character giving 87 plants with purple-haired spikelets and 31 with hyaline ones. Three purple and one hyaline selections were taken from this family and an F_3 raised. The hyaline-haired selection bred true. All the three purple-haired selections segregated giving a total of 282 plants with purple and 91 with hyaline hairs on the spikelets.

It is thus seen that purple pigmented hairs on the spikelets of sorghum are a monogenic dominant to the usual hyaline condition.

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A Modified Form of Acetocarmine

Belling's Acetocarmine[1] has been of considerable use to cytologists, in the study of nuclear divisions and any extension of its use would be welcome. As Ganeshan[2] has pointed out, there are two sources of trouble in its use. First, acetocarmine deteriorates very rapidly

under tropical conditions, though protected from bright light. Secondly, even when freshly prepared, it does not stain adequately some plant smears. To overcome these disadvantages, the addition of adjuvants to the stain was tried.

One such adjuvant, 'Igepon T', manufactured by the I. G. Farben-Industrie of Germany, was found to be useful, added in this manner. About 0·2 gm. of 'Igepon T.' is dissolved in 45 per cent. aqueous solution of acetic acid and powdered carmine is added while it is boiling. Addition of iron salt to the solution is inadvisable, but if desired the salt might be added after the smear is mounted in this carmine.

The chromcsomes take some time to stain, full colour being attained after 10 minutes. Provided the adhesion between cells and slide is good, the smear can be rinsed with rectified spirit, dehydrated with absolute alcohol, cleared and mounted in canada balsam. The cytoplasm can be counterstained with Light Green, if desired. In making the permanent mount, the cytoplasm shrinks appreciably, but not the nucleus.

The addition of 'Igepon T.' checks rapid deterioration of the acetocarmine. (The photograph, Fig. 1, is of pollen mother cells of

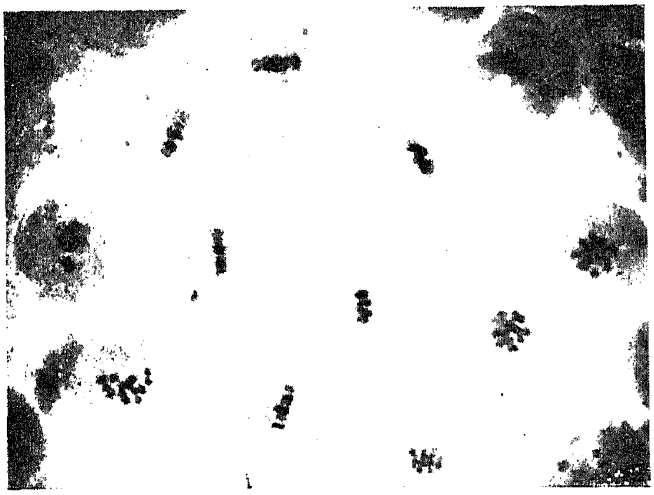

FIG. 1

P.M.C. of Tropeolum in first division metaphase

Tropeolum majus, in the first division metaphase stage, prepared in the above manner with a month old acetocarmine). It appears as if the carmine does not form a true solution in the acetic acid and that the addition of 'Igepon T.' checks the precipitation of the carmine. The adjuvant, however, improves only slightly the staining qualities of the acetocarmine. But if pure carminic acid is used instead of powdered carmine, in the preparation of the solution, the staining qualities are also improved. But the acid is much more expensive than carmine and the colour of the chromosomes, when stained, is a dull brown.

'Igepon T.' is an emulsifier, a synthetic wetting agent of value in dyeing textiles. It is apparently a sulphonated long chain unsaturated fatty acid. Similar products are marketed by a few other dye manufacturers (American and French) under different trade names and are likely to prove just as useful.

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[1] Belling, J., *Biol. Bull.*, 1926, 50, 160.
[2] Ganeshan, D., *Curr. Sci.*, 1939, 8, 114.

A Preliminary Note on the Fission of Vascular Cylinder in Some of the Roots of *Hydrocotyle asiatica,* Linn.

SOME of the old root-bases of *Hydrocotyle asiatica* Linn. show fission of the vascular cylinder and the separated masses of bundles become arranged in a circle as shown in Fig. 1. Serial transverse sections from the tip up to the base of the root with the said cleavage of the vascular cylinder reveal the normal secondary thickening of the dicotyledonous type near the root apex. When traced gradually towards the base, the continuous circular cambium ring becomes constricted into a triangular, quadrangular or pentangular arc, ultimately each arc embracing each of the xylen bundles of the stele.

Similarly, the larger mass of the xylem breaks up into as many smaller bundles as there are primary xylem bundles included in it. Almost simultaneously with the formation of these smaller bundles, they are forced away