A PROBABLE CASE OF TRANSLOCATION DURING MITOSIS INVOLVING THE SATELLITE THREAD

IN the course of an examination of the somatic chromosomes of *Muscari plumosum* I found a chromosome in anaphase bearing three satellites (Fig. 1). *Muscari plumosum* ($2n = 18$) has one pair of satellited chromosomes of which one has tandem satellites (Fig. 2).

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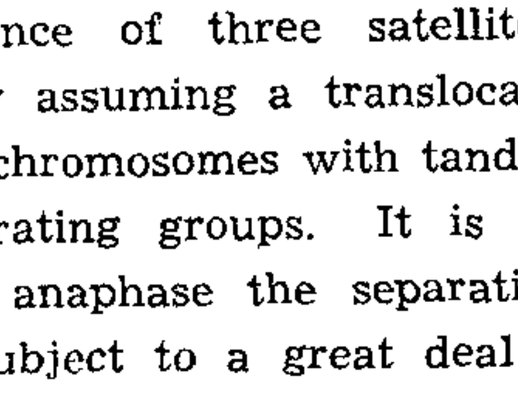
FIG. 1. Root smear of *Muscari plumosum* stained with decolourised basic fuchsin (× 1,800); the chromosomes with tandem satellites in the separating groups are marked L and L′.

FIG. 2. Somatic anaphase in *M. plumosum*, showing the sat. Chromosomes (× 1,350).

The presence of three satellites may be explained by assuming a translocation involving the two chromosomes with tandem satellites in the separating groups. It is well known that during anaphase the separating chromosomes are subject to a great deal of disturbance due to the stretching of the spindle.[1] It is possible that while separating, the sat. end of the lower chromosome has been pushed against its opposite number in the upper group so as to bring "C′" in contact with the sat. thread near "B". When once there is an



3 4 5

FIGS. 3–5. Diagrams illustrating the translocation.

overlap, a break and reunion would follow as a result of the stress of anaphasic separation. The lower chromosome would then have three satellites due to the transfer of the terminal segment B–C of the upper chromosome on to "C′".

Simple translocation involving the sat. chromosomes has been reported by the author[2] in a species of Calceoloria, but this involved break and reunion at two loci, *i.e.*, one near the satellite and the other on the body of chromosome, resulting in one long chromosome with a tandem satellite and a short one without any. Such translocations are known to have occurred naturally in a number of cases, the first one reported being that in non-irradiated Drosophila (Bridges[3]).

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[1] Belar, K., *Arch. f. Entwin.*, 1929*a*, **118**, 359.

[2] Srinath, K. V., *Zeit. f. Abst. Vererbgsl.*, 1939, B **77**, H.I., 104.

[3] Bridges, C. B., *Genetics*, 1917, **2**, 445; *Anat. Rec.*, 1923, **15**, 357.

TWO NEW SPECIES OF *ASPIROMITUS* St. FROM BOR-GHAT (LONAVALA & KHANDALA)

BY a strange coincidence the *Genus aspiromitus* St. from Bor-Ghat (Lonavala and Khandala) happens to be worked upon at two places at the same time. Mahabale[1] has described a new form from Khandala and makes it a new species. In the Botanical Laboratory of the Fergusson College, Poona, work has been in progress on *Riccia, Anthoceros, Notothylas* and *Aspiromitus* from Bor-Ghat and places near Poona, for the last few years. In November 1940, specimens of *Anthoceros* and *Aspiromitus* were sent, along with observations made on them, to Dr. S. K. Pande of Lucknow. A paper giving a detailed description of the different forms of *Anthoceros* Linn. and *Aspiromitus* St. collected so far from the localities mentioned above, has been sent to the Editor, *Bombay University Journal*, for publication and is expected to appear in the next issue of that periodical. It is thought necessary, in view of Mahabale's note, to report in *Current Science* the distinctive features of the two species of

Aspiromitus St. investigated at the Fergusson College, Poona. These species are quite new to science and are very common at Bor-Ghat (Lonavala and Khandala).

I. *Aspiromitus khandalensis, Apte and Sane, sp. nov.*—Dioecious. Thallus circular, dark green in colour, up to 40 mm. in diameter, deeply lobed, cavernous, firmly attached to the substratum by the ventral surface except at the margins. Segments oblong or wedge shaped, overlapping along the lateral margins and slightly ascending towards the apices. Surface cells about 28μ, as long as broad, polygonal or rectangular. The single female thallus bears a large number of capsules up to 75. Involucre 4–5 mm. long. Capsules stomatiferous and up to 40 mm. long. Stoma 56$\mu \times 35\mu$. Spores up to 60μ in diameter, dark black, with blunt spines. Pseudo-elaters many celled, short, bent and sometimes branched. Male plants small, with many antheridial chambers on the dorsal side; each chamber contains more than 30 antheridia; the antheridium measures 175$\mu \times 91\mu$.

II. *Aspiromitus Fergussoni, Apte and Sane, sp. nov.*—Dioecious. Thallus a rosette, 40–45 mm. in diameter, light green in colour, with four or five, rarely more, deep, slightly overlapping lobes. Lobes truncate in form, prostrate or sub-erect and 15–20 mm. long. Surface cells 35–42$\mu \times$ 49–63μ, rectangular or polygonal. Capsules 20–40 on a single plant, stomatiferous, about 40 mm. rarely 50 mm. long. Stoma 63$\mu \times 42\mu$. Involucre cylindrical, up to 7 mm. long, solitary or fused in twos or threes. Spores 36–40μ in diameter, dark black in colour with spiny surface. Elaters multicellular, straight, extremely elongated with or without branches. Male plants small, upper portions of the lobes studded with conspicuous yellow antheridial chambers. Each chamber contains numerous antheridia, generally 40 but more than 100 have also been noted. The antheridial body is large and measures 160$\mu \times 100\mu$.

It will be seen that the spore and elater characters of *A. Dixitianus*, Mahabale, agree with those of *A. Fergussoni*, but the latter differs greatly from the former in (*i*) the form and size of the thallus, (*ii*) the lengths of the capsule and the involucre, and (*iii*) the number and size of antheridia. Perhaps Mahabale's description of these characters in *A. Dixitianus* may possibly agree with that of the juvenile condition of *A. Fergussoni* and a suspicion arises that Mahabale might have based his new species on the study of only young stages of *A. Fergussoni*. This point will have to be settled in the future work on these forms.

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[1] Mahabale, T. S., *Curr. Sci.*, 1941, **10**, 530.

SOME OBSERVATIONS ON AN "IMPROVED METHOD FOR THE DETERMINATION OF PROTHROMBIN TIME"

THE "improved method"[1] introduced two ideas, though in practice the change is only in one step. The first idea is, that instead of adding thromboplastin to the oxalated plasma, incubating the mixture and then adding the calcium chloride, it is as reasonable to bring together calcium and thromboplastin and add this mixture (calcium and thromboplastin simultaneously) to the oxalated plasma in one step. We may add that this procedure has already been recommended or adopted by Napier and Das Gupta.[2] But we would submit that this is not entirely in accordance with the principle of Quick's test. The second idea is to reduce the dilution of prothrombin in the plasma with the hope of shortening the prothrombin time. "Both these problems were solved by adding directly to the plasma 0·2 c.c. of 1 in 20,000 venom solution in 0·025 calcium chloride." The total volume of the reaction mixture was thus reduced to 0·4 c.c. instead of 0·6 c.c. when thromboplastin and calcium solution were separately prepared as in Fullerton's work.[3] This modification, the authors point out,