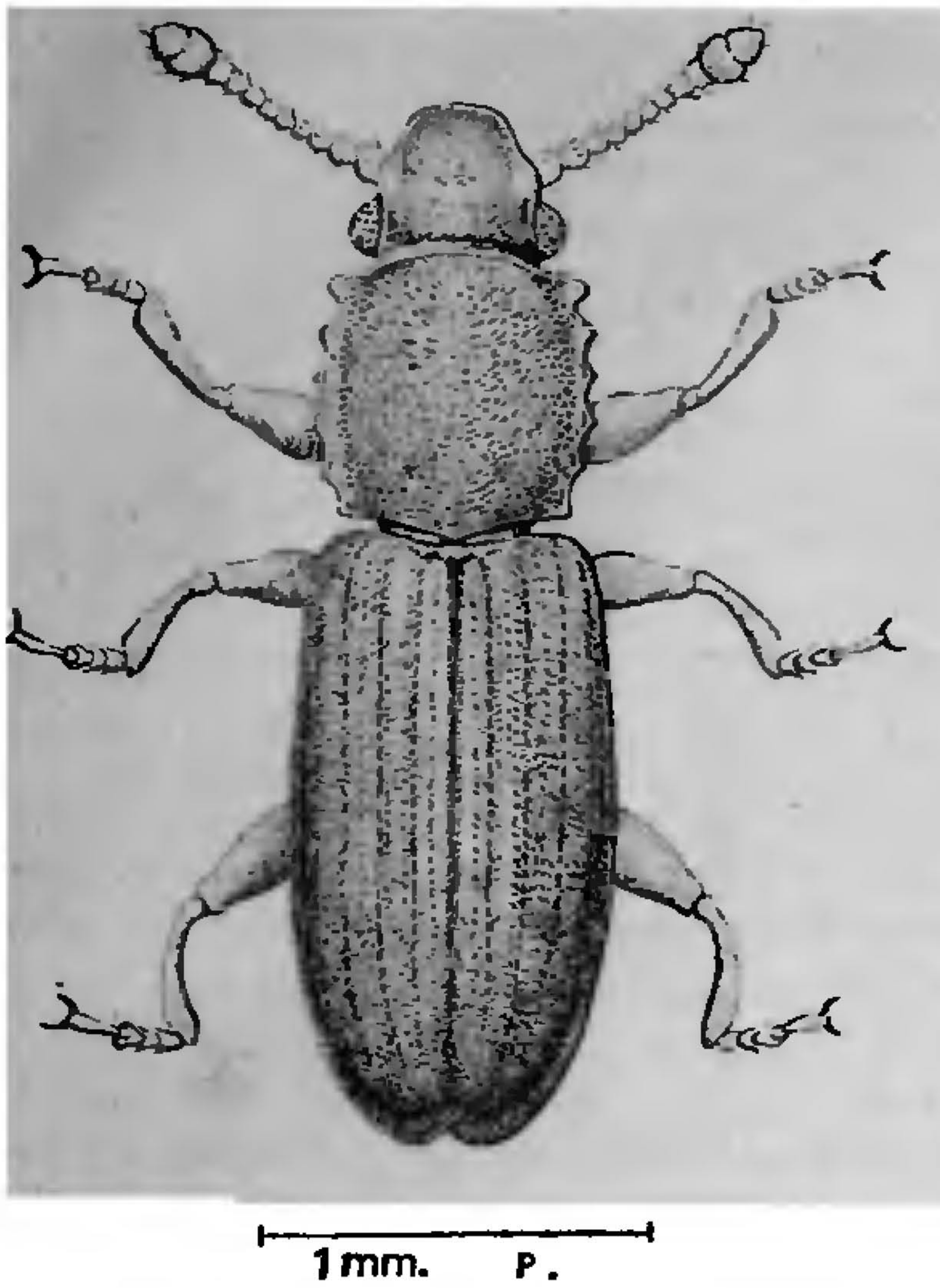

FIG. 1.

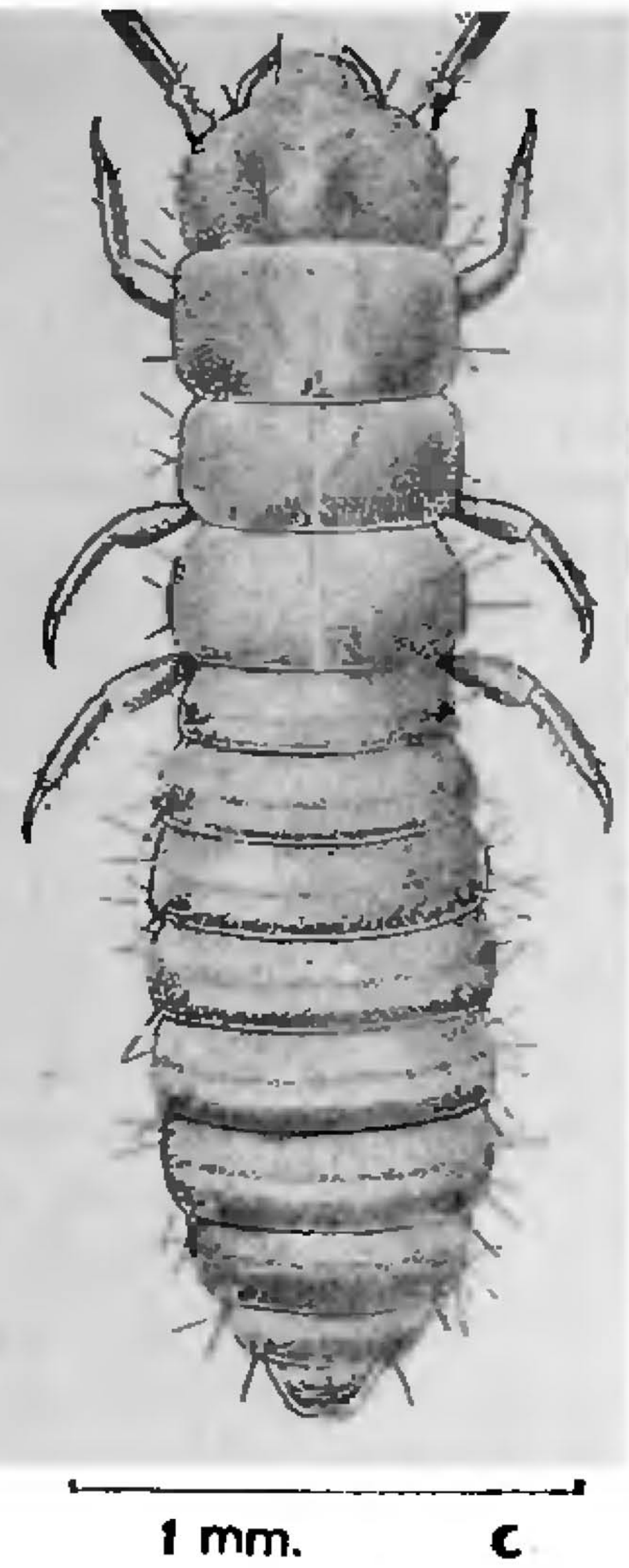

FIG. 2.

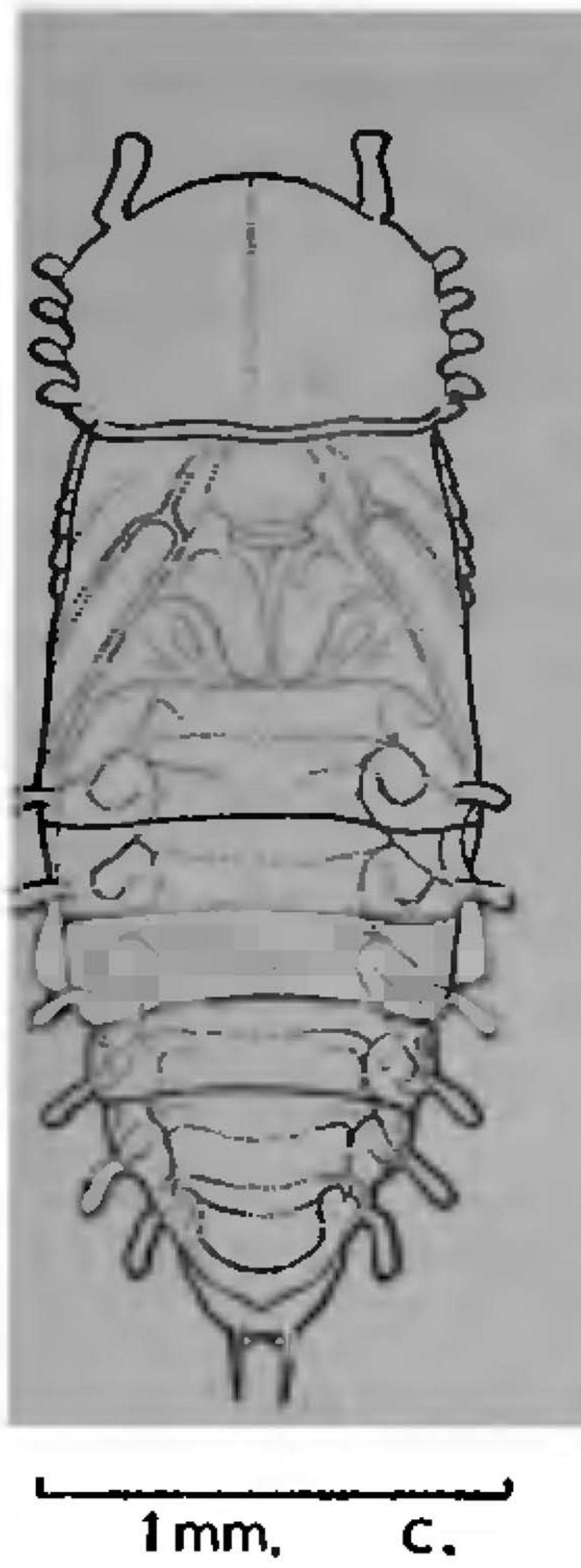

FIG. 3.

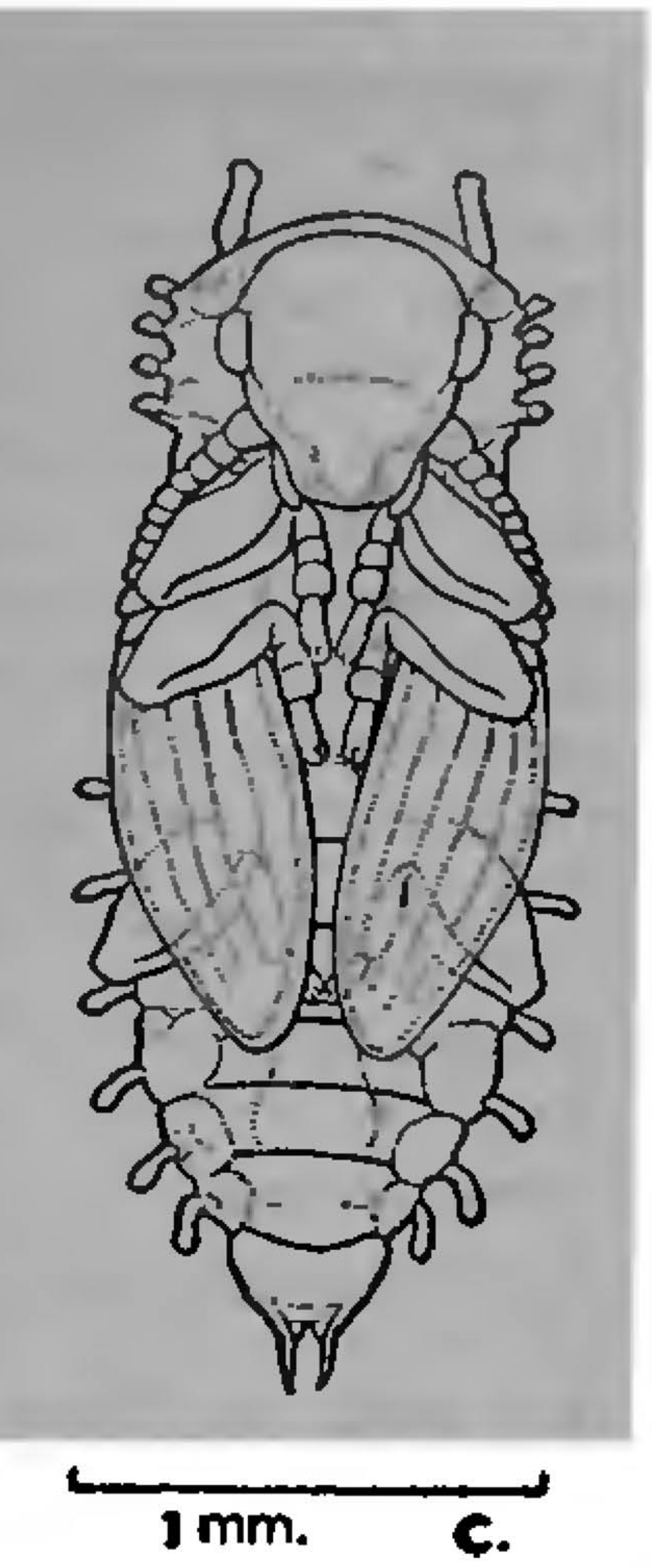

FIG 4.

Fig. 1. *Silvanus iyeri* var. *mysorensis*—adult. **Fig. 2.** Full-grown larva of *S. iyeri* var. *mysorensis*.
Fig. 3. Pupa of *S. iyeri* var. *mysorensis*—dorsal view. **Fig. 4.** Ventral view.

INHERITANCE OF FILAMENT COLOUR IN TOBACCO

FILAMENT colour in tobacco is normally green. But there are many types which have pale or light yellow and white filament. In rare cases pink filaments are also found. In our collection there are types with fully pink filaments and those in which filament has a pink wash confined to the tip only. Among the fully pink types the intensity of the colour varies from faint to deep pink.

Kelaney[1] dealing with a fully pink filament type reported that the pink colour is controlled by two complementary genes giving a ratio of 9 pink : 7 green. In a cross between two flue-cured varieties, Kadam and Murty[2] found that an inhibitor, controlling the filament tip colour, was operating giving a ratio of 13 colourless to 3 coloured. In their cases, the pink wash was confined to the tip of the filament just below the attachment to another. We present now a third case where the filament tip colour is controlled by two complementary genes.

Lanka, an indigenous petiolate type, was crossed with a Turkish petiolate variety in 1950-51 with a view to increase the leaf-number of the *Lanka* tobacco. The *Lanka* variety has pale filament while the other type has a pink wash at the tip of the filament. The F_1 was petiolate and had a pink wash similar to the Turkish parent. The F_1 was grown in 1951-52 and the F_2, the next season. For confirming the F_2 behaviour, nineteen plants were selected at random for F_3 generation. In 1953-54 back-cross of the F_1 to *Lanka* and the F_2 generation were also grown again along with the 19 F_3 families. The segregations of the various generations are presented in Table I.

TABLE I

Segregation in F_2, F_3 and back-cross for filament tip colour between Lanka *and a Turkish variety*

	Observed		Expected		Total	χ^2	P
	Coloured	Not coloured	Coloured	Not coloured			
F_2 (1952–53) (9 : 7)	35	29	36·00	28·00	64	0·0635	0·80–0·90
F_2 (1953–54) 9 : 7)	41	37	43·88	34·12	78	0·4306	0·50–0·70
F_1 × *Lanka* (1953–54) (1 : 3)	48	117	41·25	123·75	165	0·1473	0·70–0·80
F_3 Families segregating 9 Coloured : 7 not Coloured							
29	46	32	43·88	34·12	78	0·2352	0·50–0·70
35	47	38	47·81	37·19	85	0·0316	0·80–0·90
38	56	40	54·00	42·00	96	0·1703	0·50–0·70
65	54	38	51·75	40·25	92	0·2236	0·50–0·70
F_3 Families segregating for 3 Coloured : 1 not Coloured							
23	67	22	66·75	22·25	89	0·0037	0·95–0·98
56	62	19	60·75	20·25	81	0·1029	0·70–0·80
58	62	17	59·25	19·75	79	0·5105	0·30–0·50
73	50	16	49·50	16·50	66	0·0203	0·80–0·90

TABLE II

	Pure for Coloured	9 Coloured : 7 Colourless	3 Coloured : 1 Colourless	Pure for Colourless	Total	χ^2	P
Observed ..	3	4	4	8	19		
Calculated (1 : 4 : 4 : 7)	1·1875	4·7500	4·7500	8·3125		3·0149	0·30–0·50

It will be seen that the F_2, F_3 and back-cross numbers agree well within the expected segregations.

Out of the 19 F_3 families, 8 bred pure for colourless condition, 4 families segregated 9 coloured : 7 not-coloured and another four gave a ratio of 3 coloured : 1 not-coloured and 3 families bred pure for coloured condition. The frequencies of the different categories of families agree well with the expectation as is seen from Table II.

The complementary genes for the pink colour of the filament are designated Fp_a and Fp_b.

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