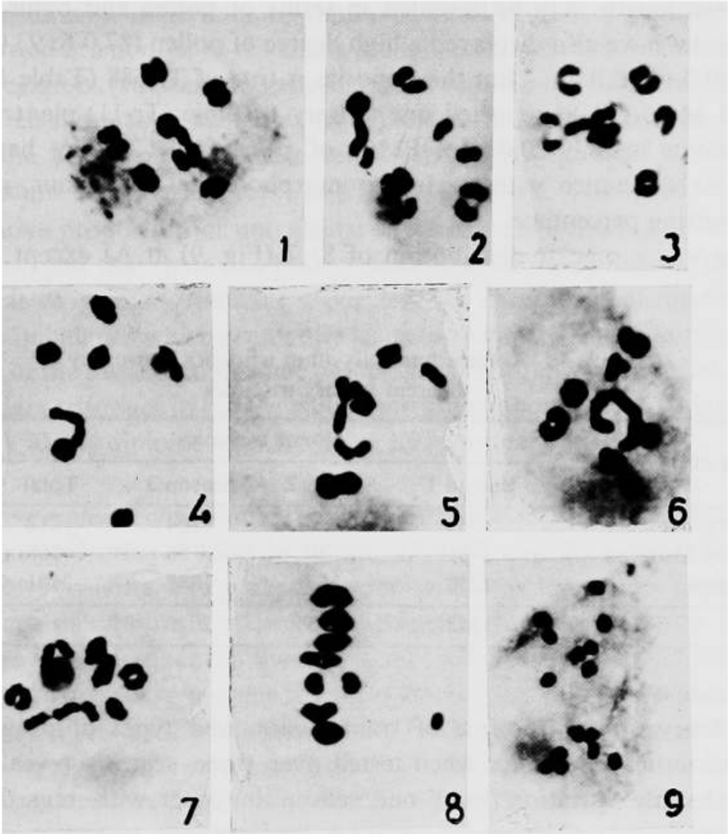
Types of pentavalent configuration

Table 3 resumes the observation on frequency of pentavalent variants found in different stocks of tertiary trisomics.

The presence of specific number and position of the chiasmata and size of chromosomes involved are the deciding factors for a particular shape of pentavalents in tertiary trisomics (Khush 1973). Certain shapes of pentavalents, like dumbbell, 2 modified forms of dumbbell (Figs. 2, 3) pan-, y- and chain-shapes have been observed in variable frequencies in different stocks of tertiary trisomics.

Among the pentavalent configurations, chain quinquevalent was highly frequent in most of the tertiary stocks ranging from 12.5% in Tr-656 to 91.4% noted in Tr-763. Contrarily among different variants of dumbbells, the frequency of closed bivalent dumbbell (Fig. 1) was ranging between zero per cent in many trisomics to the tune of 30.6% observed in Tr-656. Two other modified forms of dumbbells (Figs. 2, 3) were noted of 1.1% in Tr-763 to the maximum of 24.8% in Tr-656.



Figs. 1–9. Different configurations of pentavalents in meiosis in tertiary trisomics of pearl millet (*Pennisetum americanum*). 1, diakinesis $5^{II}+1^{V}$, dumbbell shaped (with both closed ends). 2, diakinesis $5^{II}+1^{V}$, dumbbell shaped (with one closed end). 3, diakinesis $5^{II}+1^{V}$, dumbbell shaped (with both opened ends). 4, diakinesis $5^{II}+1^{V}$, pan shaped. 5, diakinesis $5^{II}+1^{V}$, y-shaped. 6, diakinesis $5^{II}+1^{V}$, chain shaped (attached to nucleolus). 7, diakinesis $6^{II}+1^{III}$. 8, metaphase I $7^{II}+1^{I}$. 9, anaphase I 8-7 separation of chromosomes.