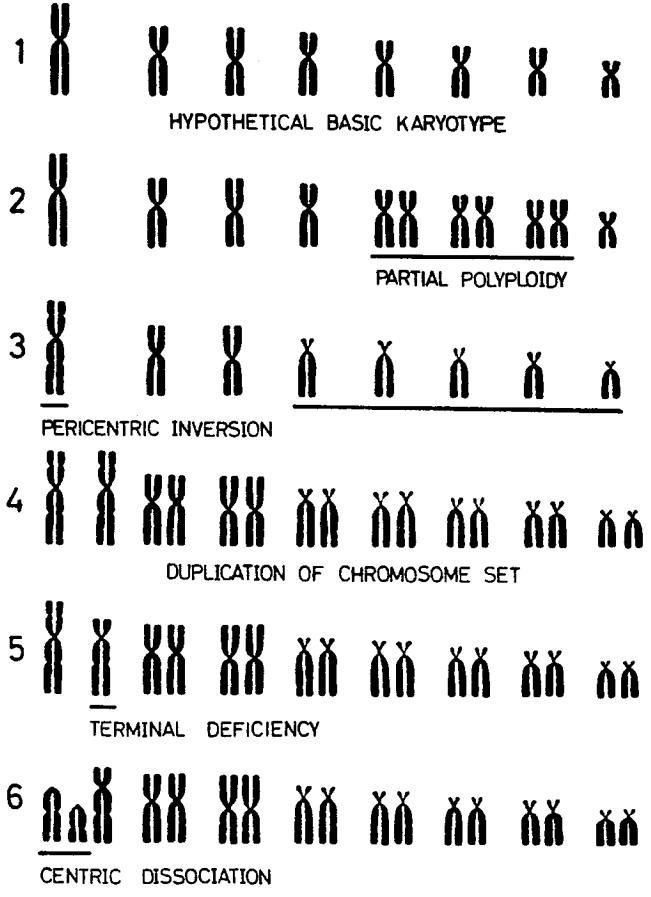

Fig. 3. Hypothetical processes of karyotype differentiation in three Japanese *Aphaenogaster* ants.

1. Hypothetical basic karyotype of *Aphaenogaster*.
2. The karyotype of *A. smythiesi* which can be derived from the hypothetical basic karyotype by partial polyploidy of three submetacentric chromosomes.
3. The first hypothetical step of karyotype evolution which is derived by pericentric inversion from the karyotype shown in 1.
4. The second hypothetical step of karyotype evolution derived by a duplication of chromosome set from the karyotype shown in 3.
5. The karyotype of *A. osimensis* which can be derived by a terminal deficiency of the largest submetacentric chromosome in the hypothetical karyotype shown in 4.
6. The karyotype of *A. famelica* which can be obtained by a centric dissociation of largest submetacentric chromosome of *A. osimensis* shown in 5.