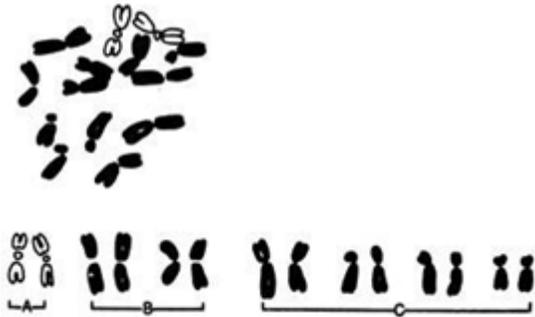


Karyotype:

Karyotype represents the chromosome constitution of a cell or an individual. It deals with the length of chromosome, the position of Centromere, presence of secondary constriction, and the size of satellite of the somatic chromosome complement.

- i. Generally, karyotype is prepared from well-scattered chromosomes of mitotic metaphase plate.*
- ii. The information regarding chromosome constitutions are obtained from hand drawing of the microscopic view of chromosomes with the help of camera Lucida or drawing prism. Photomicrographs of metaphase plate are also used for the preparation of karyotype.*
- iii. Karyotypes are presented by arranging the chromosomes in a descending order of length in a straight line. The longest chromosome is always placed on the right side and the smallest one of the right. All chromosomes in a karyotype do not bear the centromere at the same position.*
- iv. So, in a karyotype, chromosomes are grouped on the basis of the position of centromere and, in each group, descending order of length of chromosome is also maintained.*
- v. Each chromosome of a karyotype is marked by a serial number from the extreme left to extreme right.*



Camera Lucida drawing of metaphase and their Karyotype

Broadly, karyotypes of different organisms may be classified into two categories:

1. Symmetrical Karyotype;

2. Asymmetrical Karyotype.

1. Symmetrical Karyotype;

i. symmetrical karyotype has all metacentric chromosome of the same length.

ii. In case of asymmetrical karyotype variation of length of chromosome complement is found and the position of centromere may or may not be identical.

iii. In certain case, karyotype is asymmetrical but the length of chromosome is sharply two types—some chromosomes are very long and some are very short. This type of asymmetrical karyotype is known as bimodal karyotype.

iv. It is believed that symmetrical karyotype is the primitive form from which more advanced asymmetrical karyotype has been evolved.

v. The karyotype of a species may be represented on graph or plain paper by bar diagram showing all morphological features of the chromosome. Such diagram is known as *Idiotype or Idiogram*. Idiogram is prepared from haploid chromosome complement of an organism.

An idiogram gives the identical information like that of karyotype.

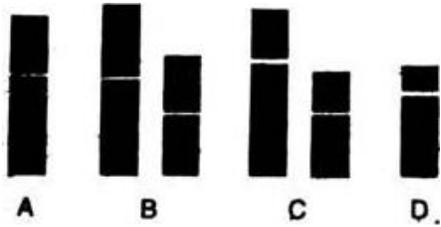


Fig — ideogram of haploid set of chromosome represented by bar.