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B.Sc-I. Zoology (Hons) Chromosomes.

[B] In Eukaryotic cells, on the basis of sexual and other characters, Chromosomes are of two types: —

(1) AUTOSOME: — These chromosomes do not take part in sex determination but necessary for producing somatic characters like number is more than sex chromosome. For example, in human cell out of 46 chromosomes, 44 are autosome.

(2) SEX CHROMOSOME (HETEROSOME): — These chromosomes are necessary for sex determination. In human cells, its number is 2. The larger one is called X-chromosome and the smaller one is called Y-chromosome. In human male, both "XY" are present, but in human female, only 'XX' are present.

[C] on the basis of number of chromosome, it may be of two types: —

(1) HAPLOID → In this type of chromosome, only single partner of pairs are present. — In human sperm or egg haploid number of chromosome is 23. it is denoted by 'n', The haploid set of chromosome is called genome.

(2) DIPLOID → In this type of chromosome both partner of pairs are present in human somatic cells, The diploid number of chromosome is 46. it is denoted by "2n". The diagram which represent

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Chromosomes

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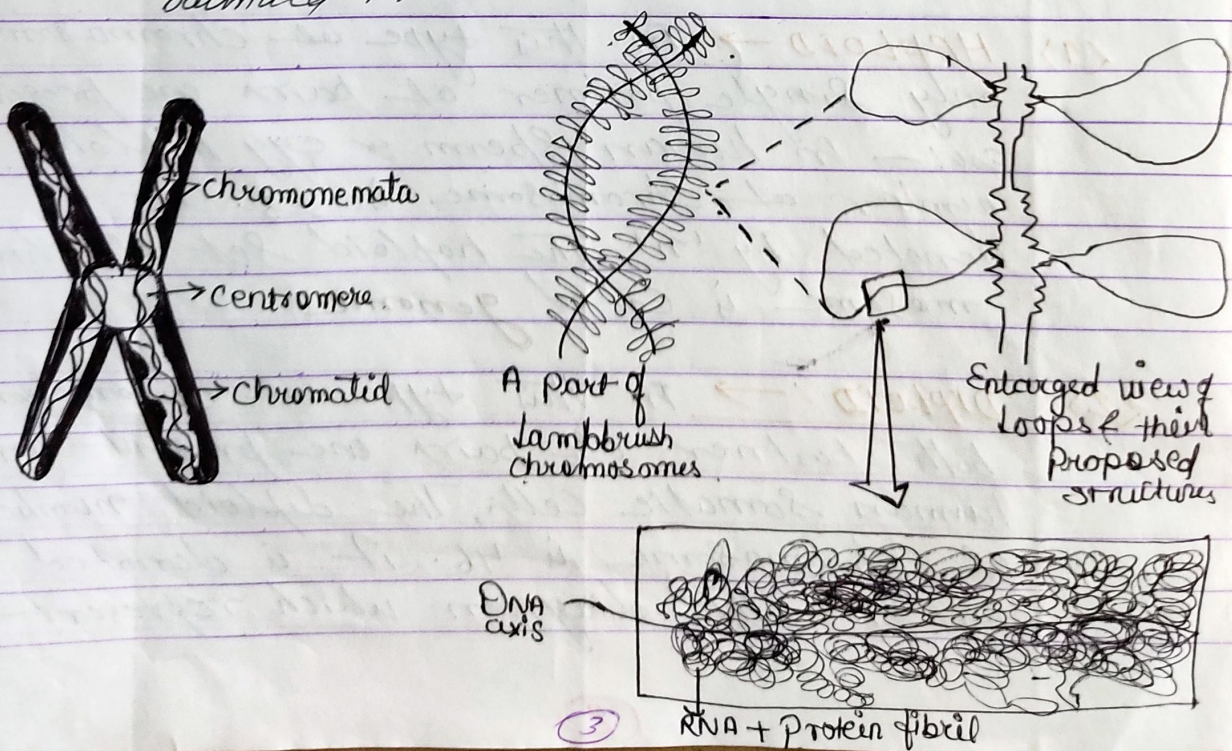
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The diploid number of chromosome is called Idiogram.

**DYAD CHROMOSOME:** — During cell division, chromosomes become shorter and thicker and each chromosome splitted vertically but attached at the point of Centromere. Such type of chromosome is called dyad chromosome and each half part of chromosome is called chromatid. The two chromatids of same chromosome is called sister chromatids.

**SPECIAL TYPE OF CHROMOSOME:** —

(1) **LAMPBRUSH CHROMOSOME:** — In the yolky egg of some vertebrates, some giant chromosomes are found which is similar to brush used for cleaning of lamp. Such type of chromosome is called lampbrush chromosome. It's length is approx 800-1000  $\mu\text{m}$ . Due to extra length of chromosome, some loops are found in each loop. Central DNA axis is present which is surrounded by protein bounded RNA.



Q2) POLYTENE CHROMOSOME :— it is also an important giant chromosome, which is first time reported by Balbiani in 1881 in salivary gland of diptera insect. its length is approx. 2000  $\mu\text{m}$ . At the surface of chromosome, some transverse, dark and light bands of euchromatin and heterochromatin are found respectively.

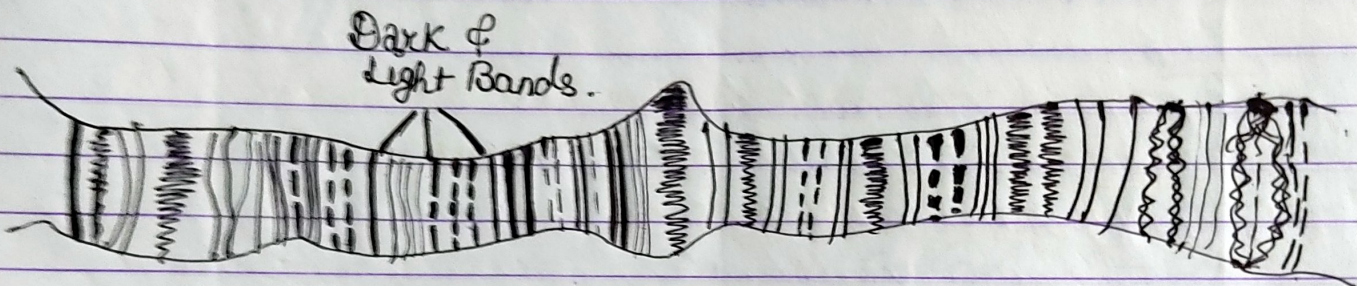


Fig:— polytene chromosome.