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In diplo- tene stage of meiosis, the yolk-rich oocytes of vertebrates contain the nuclei with many lamp brush-shaped chromosomes of exceptionally large sizes. The lamp brush chromosomes (discovered by Ruckert in 1892) are formed during the active synthesis of mRNA molecules for the future use by the egg during cleavage when no synthesis of mRNA molecules is possible due to active involvement of chromosomes in the mitotic cell division.

2. Giant chromosomes or salivary gland chromosomes: Balbiani in 1881 was first observed salivary gland chromosomes in the salivary glands of dipteran hence it is called as salivary gland chromosomes. Due to presence of many chromonemal fibrils on them these chromosomes are termed as polytene chromosomes by Koller. 3. B chromosomes/accessory chromosomes/supernumerary chromosomes: In many species, one too many chromosomes in addition to the normal somatic complement are found, these extra chromosomes are called ‘ B’ chromosomes. These chromosomes are smaller in size than the chromosomes of the normal somatic complement but in some species they may be larger. The nuclei of the salivary gland cells of the larvae of dipterans like Drosophila have unusually long and wide chromosomes, 100 or 200 times in size of the chromosomes in meiosis and mitosis of the same species. This is particularly surprising, since the salivary gland cells do not divide after the glands are formed, yet their chromosomes replicate several times (a process called endomitosis) and become exceptionally giant-sized to be called polytene or multi-stranded chromosomes (discovered by Balbiani (1881) and named by Koller).

The endomitosis process result in the production of 2X chromosomes, where X gives the number of multiplication cycle. 4. Holokinetic chromosomes: The chromosomes of most plants and animals have centromeres that are situated at one specific position in each chromosome. In a number of animals, an especially in insect of the order Hemiptera and a few, mostly monocotyledonous plants (Juncales, Cyperales), the kinetic activity is distributed over the entire chromosome and such chromosomes are called Holokinetic chromosomes (Sybenga, 1972).

The term -diffuse centromere has been used as an alternative but is not quite logical. In 1966 Flach observed this type of centromere in some primitive dicotyledons (Ranales: Myristica, Ascaris and Pseudoscorpion Tityus also possess such polycentric chromosomes). In mitotic metaphase, the chromatids of a Holokinetic chromosome orient parallel in the equator: one chromatid towards one pole the other towards the other pole. This is also the way they separate in anaphase and they maintain this orientation until they arrive at the poles. Probably kinetic activity starts at one point and proceed from there on, orienting each unit to the preceding one.