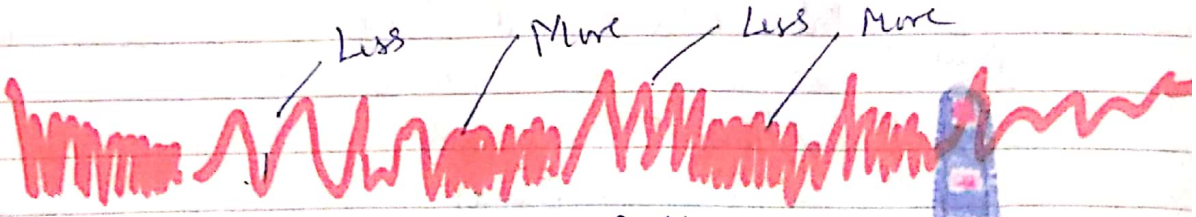
Heteropycnosis:- Differences in the thickening of chromosomes are known as heteropycnosis.

It is a common phenomenon. A set of chromosomes, a chromosome or certain parts of chromosomes may be more or less condensed than the other set, chromosome or part, portion of chromosome.

Thus heteropycnosis may be positive or negative. The positive one due to over condensation and the negative one due to undercondensation.

Normally chromosomes get enlarged or uncondensed during interphase. But in certain cases e.g. sex chromosomes remain condensed during interphase also. Such chromosomes are known as Heterochromosomes.



Thickening Patterns.

Diagram Showing Heteropycnosis

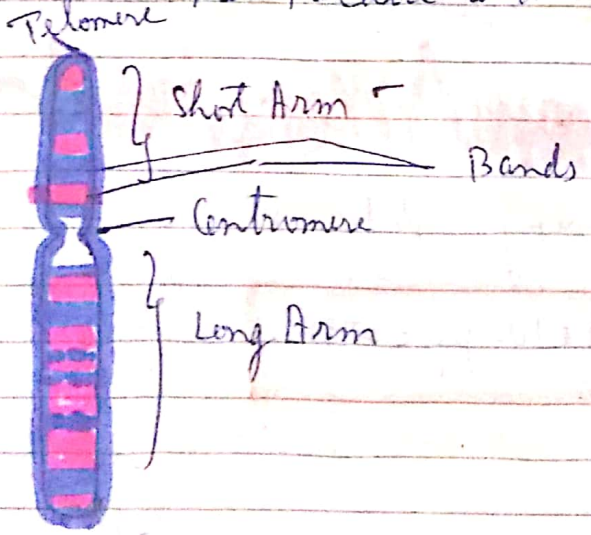
CHROMOSOME BANDING PATTERN.

The part of chromosome, clearly distinguishable from its adjacent segment having more or less stained is known as Band. These bands are ~~are~~ arranged on chromosome. The pattern of arrangement of these bands are known as CHROMOSOME BANDING PATTERN.

These are difinite for a chromosome. These may be considered as their identifying features. They show homologous pairing during meiosis accordingly.

These are different from the banding patterns of Giant Chromosomes.

1St observed during nineteenth century.
But ~~1st~~ 1St reported during 1968
~~Lap~~ Caspersson et. al. 1968.
~~Pdd~~ Pardue and Gall



A Typical Chromosome ~~Shown~~ Showing Banding Pattern.

There are several types of Chromosome banding. The common ones are as follows.

a) G-Banding
b) Q- Banding
c) C- Banding
d) R- Banding

a) G- Banding → These are related to Giesma stain. This banding gives a series of light and dark stripes along the chromosome lengthwise.

b) Q- Banding → Here Quinacrine stain is used. It yields a fluorescent pattern. It is similar of G-banding. It glows yellow.

c) C- Banding - It stains centromere only. It is at constricted part of chromosomes Here sister chromatids get attached to each other during cell division

d) R- Banding → It stains normal part of chromosome ~~ext~~ except Centromeric parts. Hence it is said to be just opposite to C-Banding.

FUNCTIONS OF CHROMOSOMES.

There are many functions of chromosome. Some of them are as follows:-

1) They carry Genes i.e. units of hereditary material.

2) They pass genetic informations from parent ones to their off-springs. It continues from generation to generation.

3) They protect DNAs from a damaging and getting tangled.

4) They regulate expression of Gene.

5) They play an important role acting as guiding force for, growth, reproduction, repair, regeneration, metabolic enzymes, proteins & so on.

6) DNA are tightly packed into them.

7) Helpful in equalization of DNA contents.

8) Keep species stabl stability.

9) Helpe Helpful in crossing over and yield to new combination of Gene.

10) Causes, natural, gradual evolutionary growth.