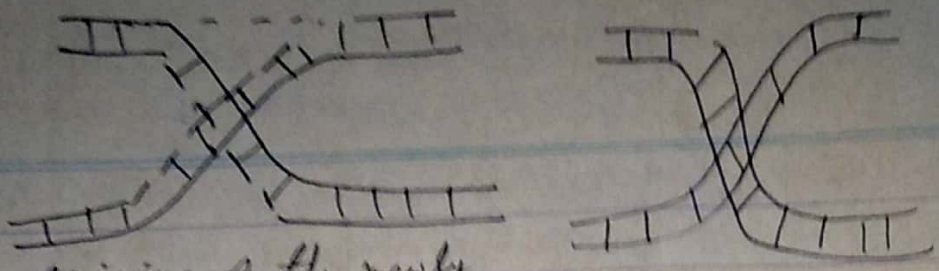

pairing of the newly synthesised strand with complementary broken strand.

VI. Hollidays Model.

VII. Break & Exchange theory:-
It is the most accepted theory to explain the process of crossing over. The theory stats that in the crossing over break occur in the non sister chromatids of the tetrad & exchange of chromosomal segment occur between the non sister chromatids. stem & Hotta (1969) have shown that - crossing over is performed by two nuclear enzymes namely endonuclease & Ligase. The endonuclease helps in breaking of the chromatids & Ligase restores the broken segment to the broken non sister chromatids. It is experimentally established that during the cause of crossing over synthesis of small amount (about 3%) of DNA takes place which is used in the repairing of the broken chromatids during crossing over.

of broken chromatid

Significance of Crossing over

(1) Crossing over occurs in the germinal cells of all sexually reproducing organisms. Except a few and in somatic cells of some organisms. It has got the following significance.

(2) variation is produced among individuals of the same spp.

(3) It provides the proof for linear arrangement of gene on the chromosome.

(4) It determines the distance between the two gene loci and these helps in the preparation of genetic map.

(5) Crossing over has a great importance in the field of breeding to improve the varieties of animals. The breeders have to depend on the recombination of characters through hybridization.

Conclusion:- Crossing over is the most remarkable event in the meiosis which is must to all the sexually reproducing organism. It originate with the origin of sex and meiosis. It can be significantly concluded that Crossing over is the most important tool which act at gene level of produces new varieties which is the spring of evolution.