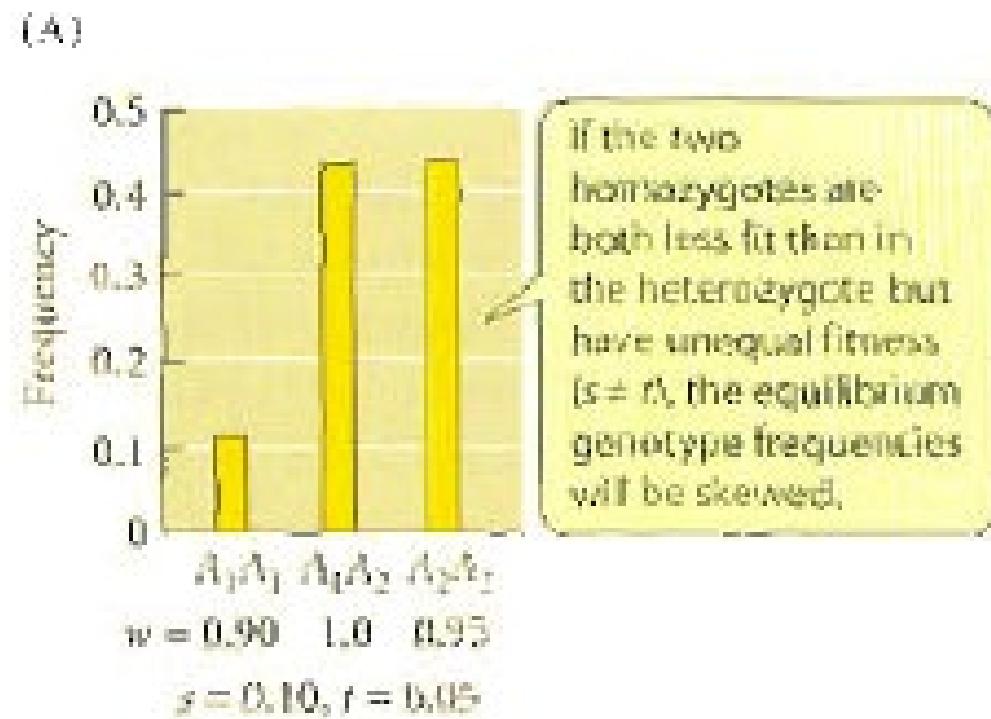
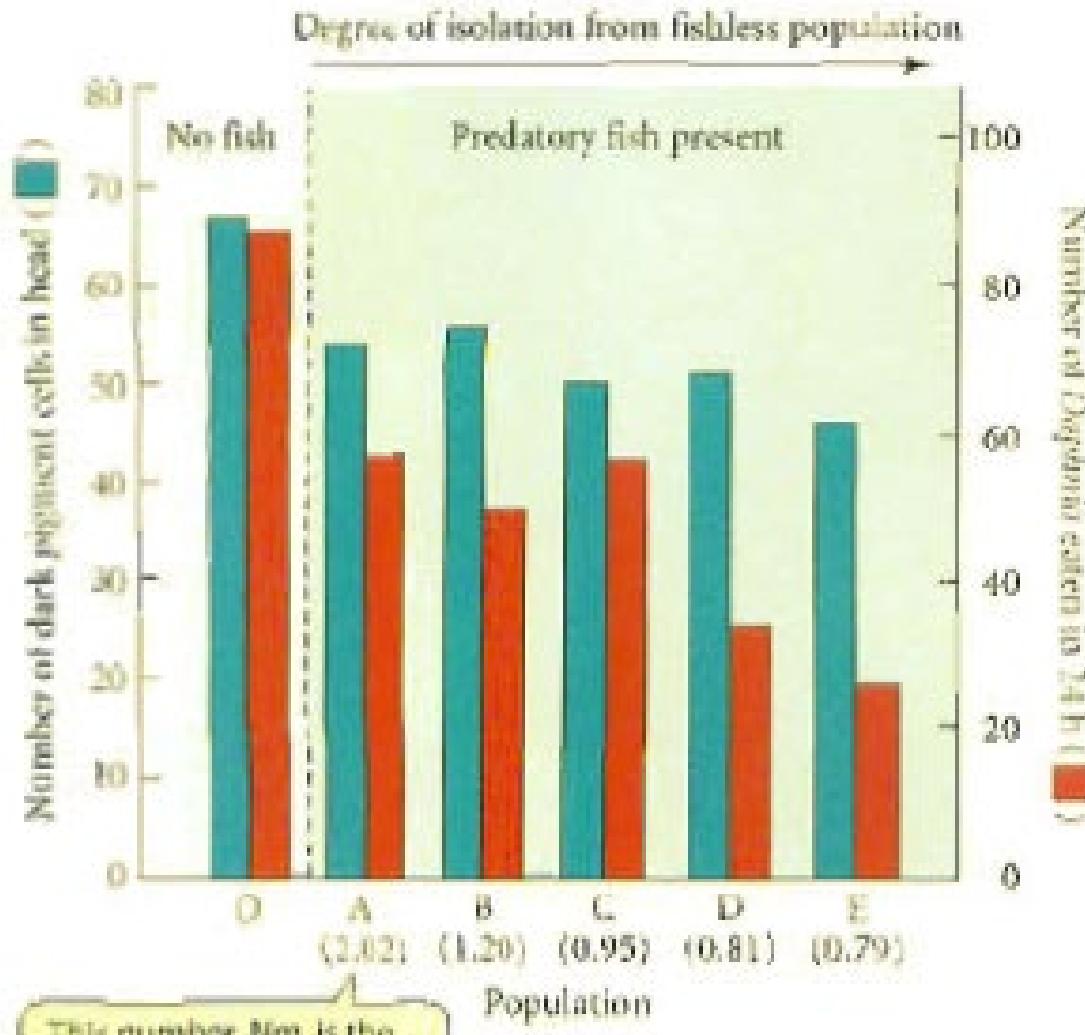
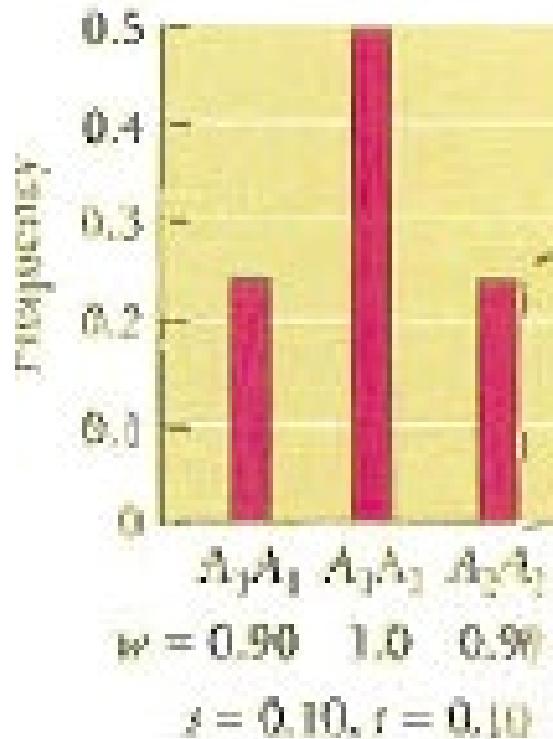
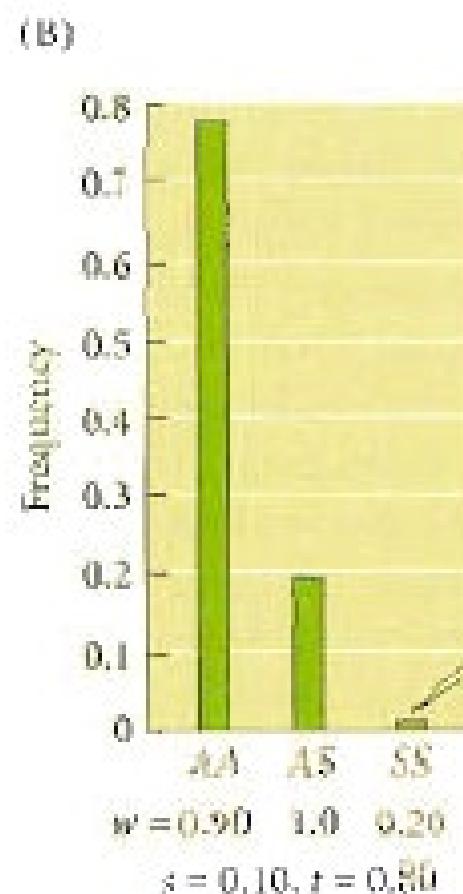


12. Doğal Seçilimin Genetik Kuramı

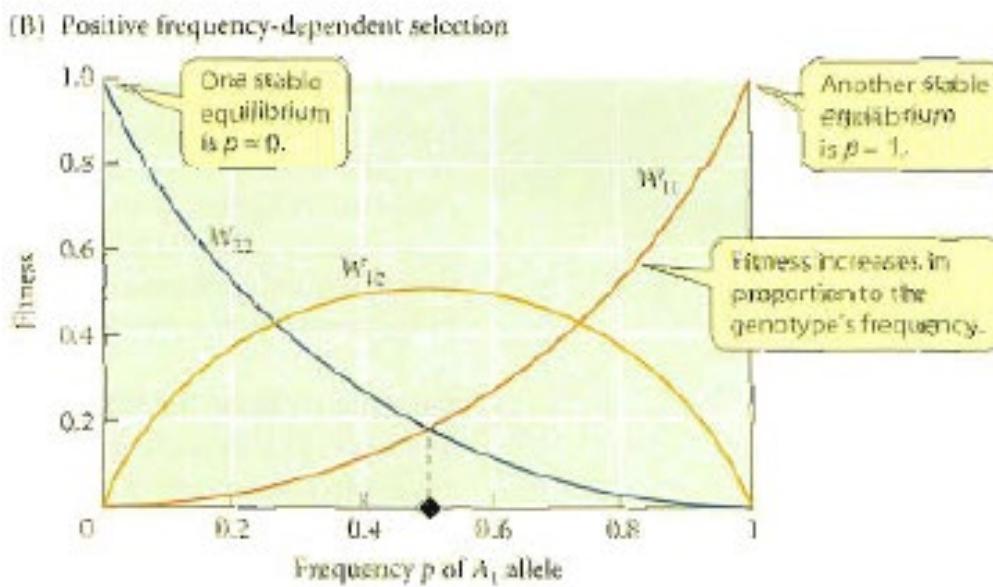
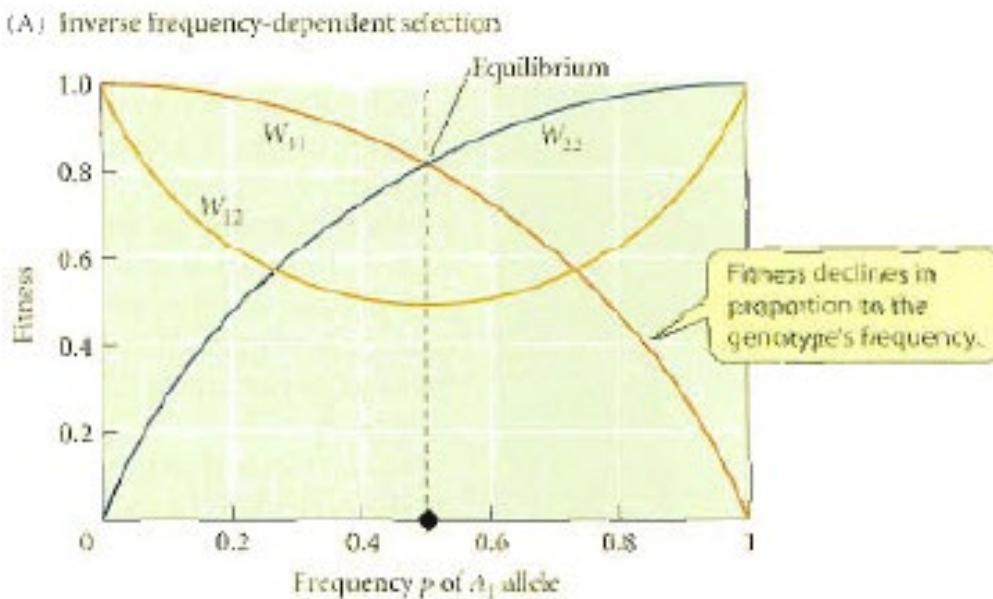
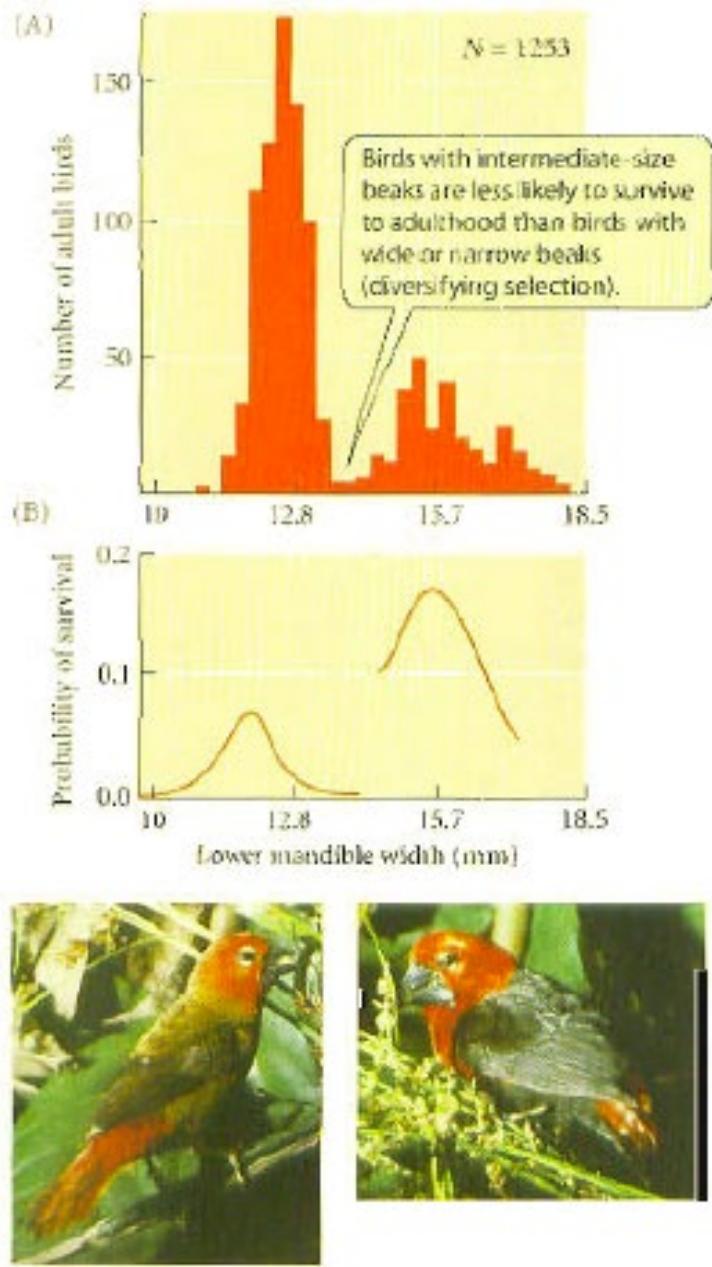




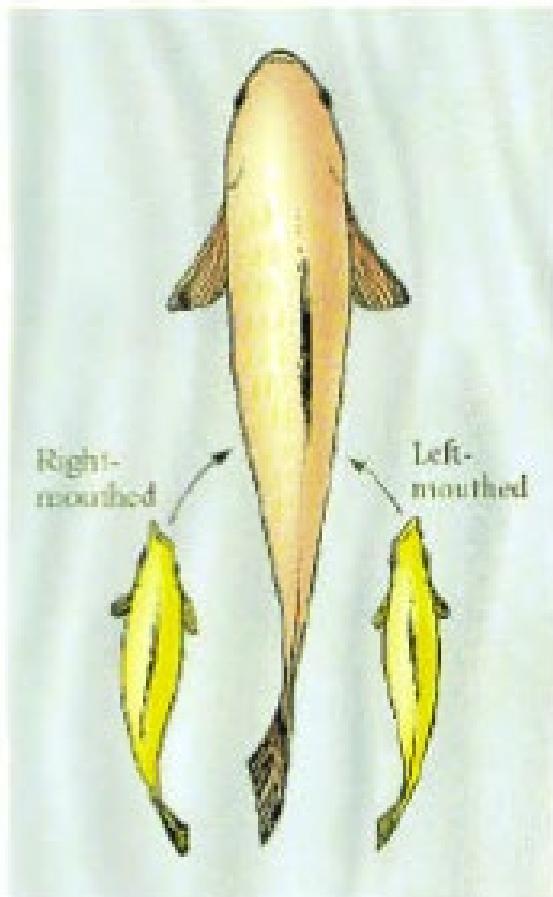
If both homozygotes are less fit than the heterozygote to the same extent ($s = t$), they both will have a frequency of 0.25 at equilibrium.



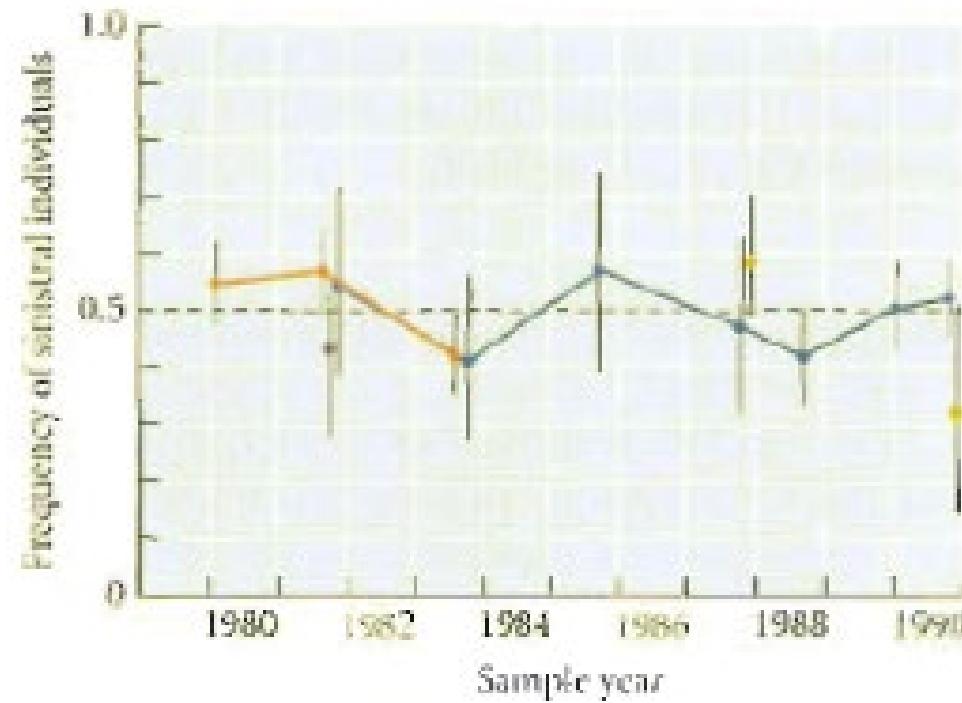
Where sickle-cell heterozygotes ("carriers") have highest fitness, homozygotes, affected by sickle-cell disease, persist in the population at a low frequency.

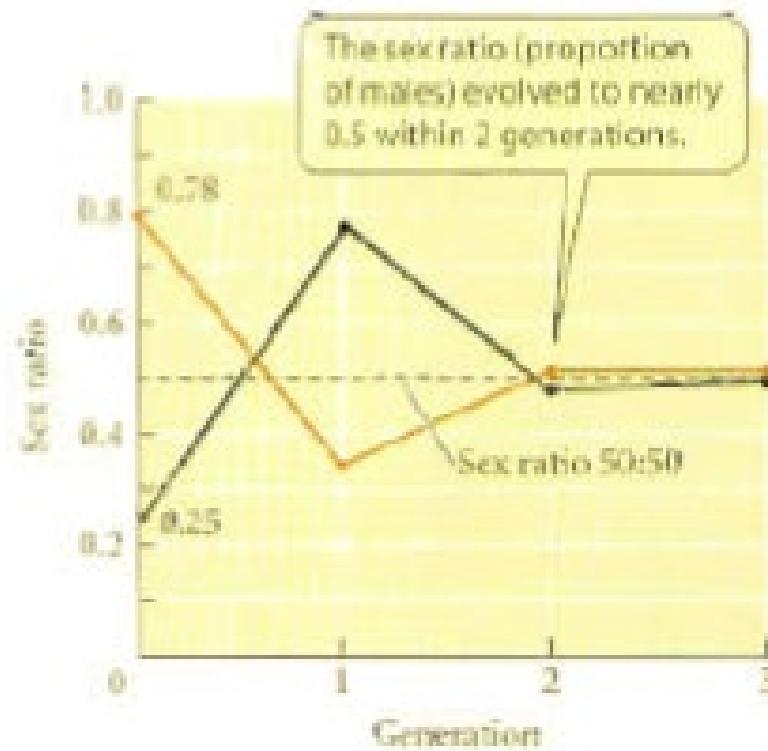
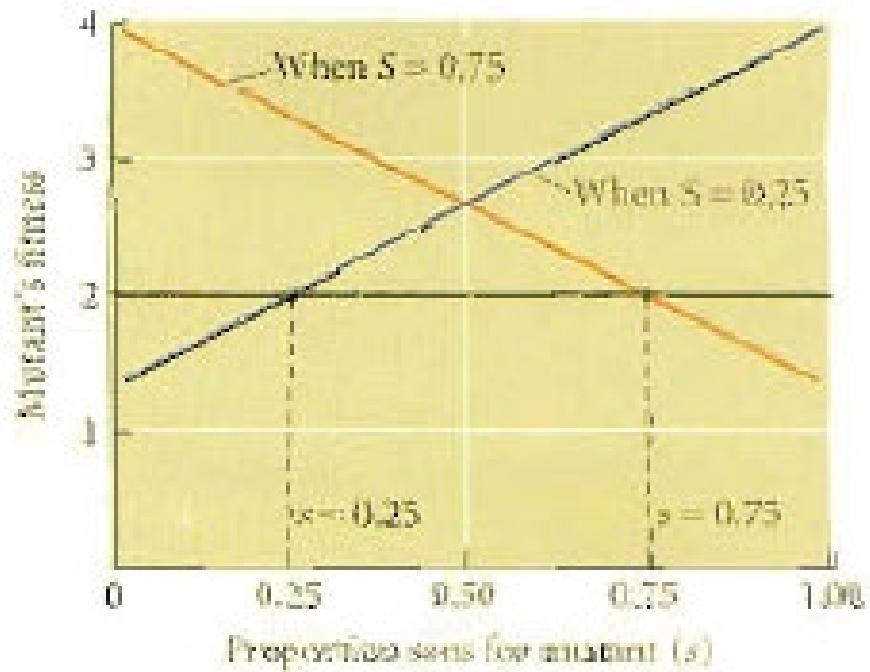


(A)

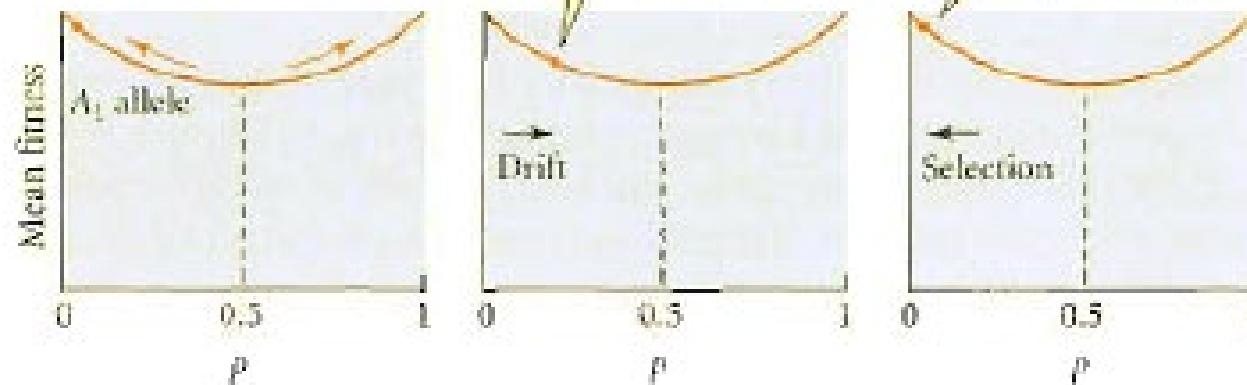


(B)





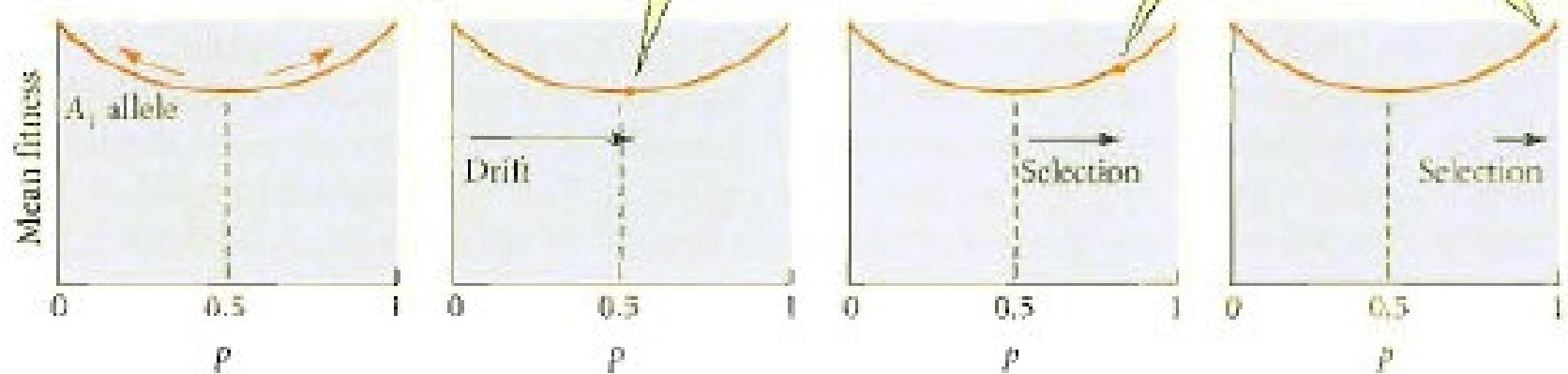
(A)



The frequency of A_1 may increase by genetic drift...

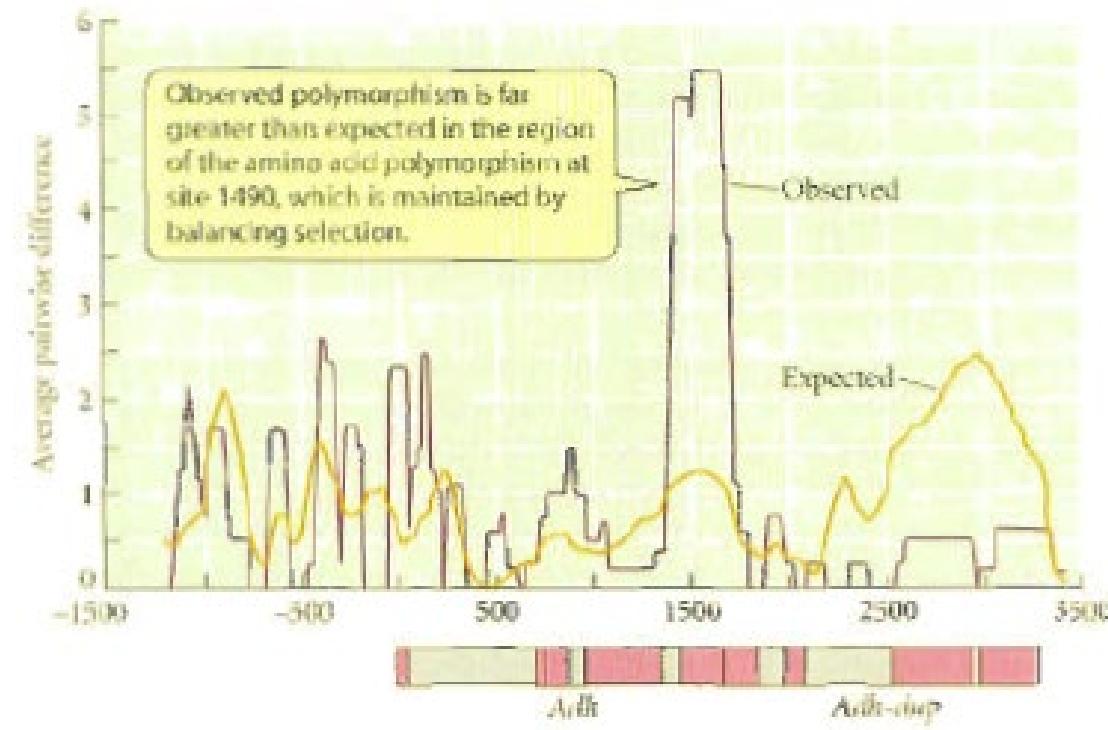
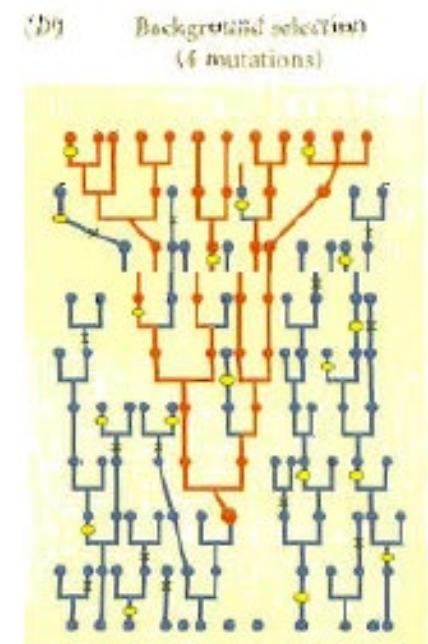
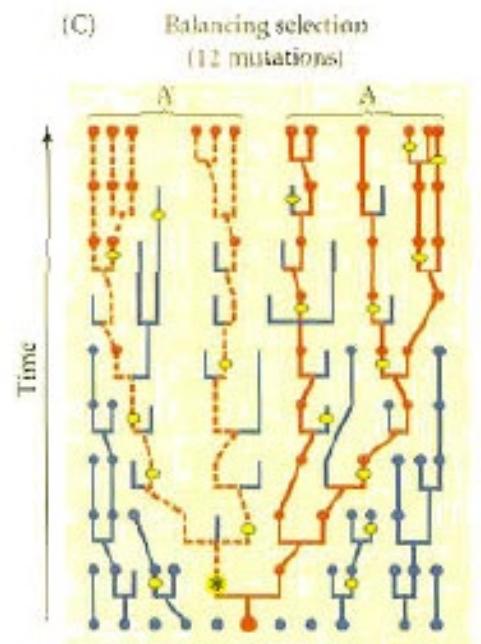
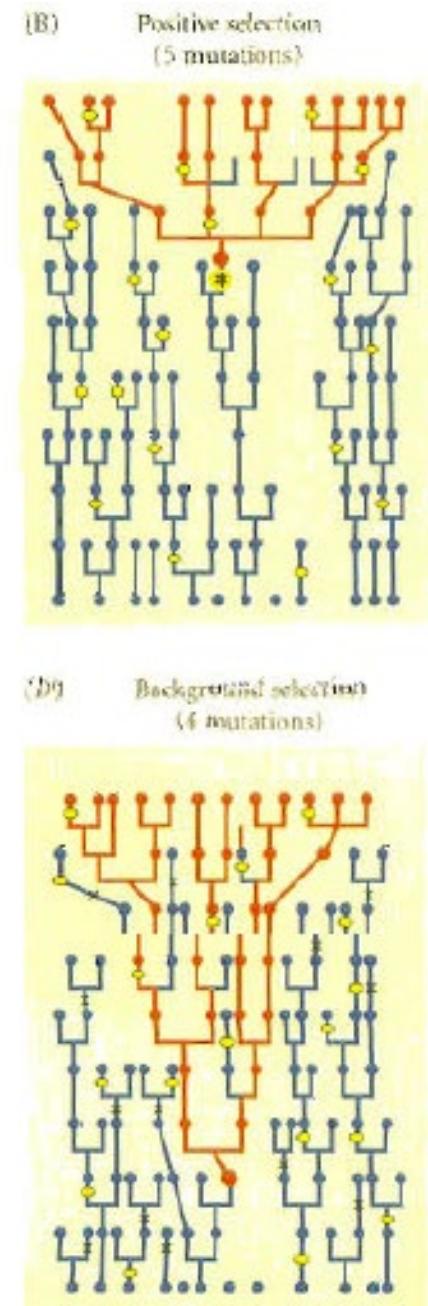
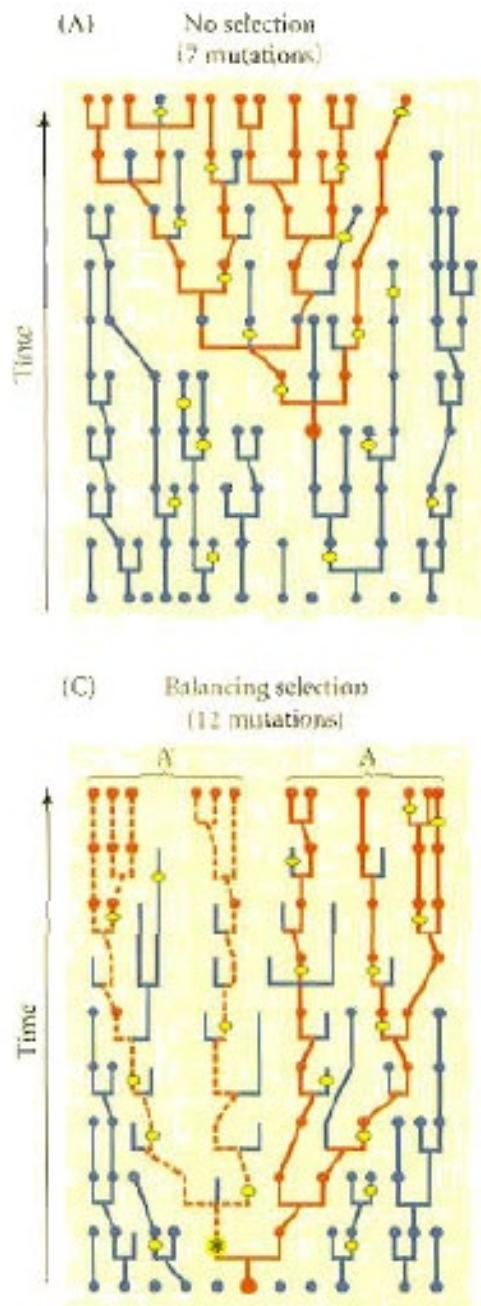
...but returns toward 0 if selection is strong and/or the population is large.

(B)

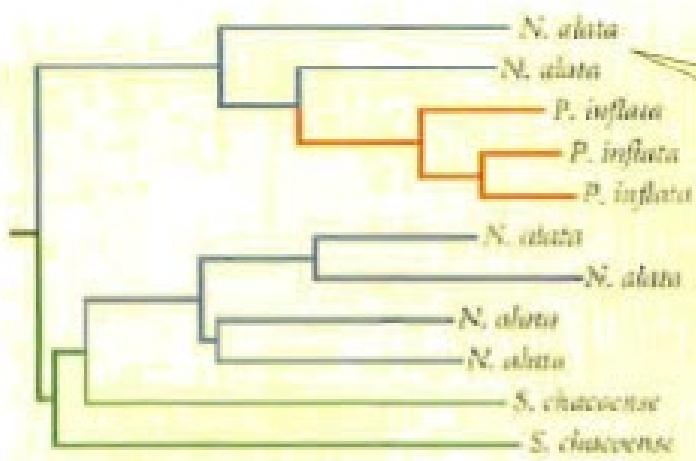


If selection is weak and/or the population is small, A_1 may increase beyond the unstable equilibrium...

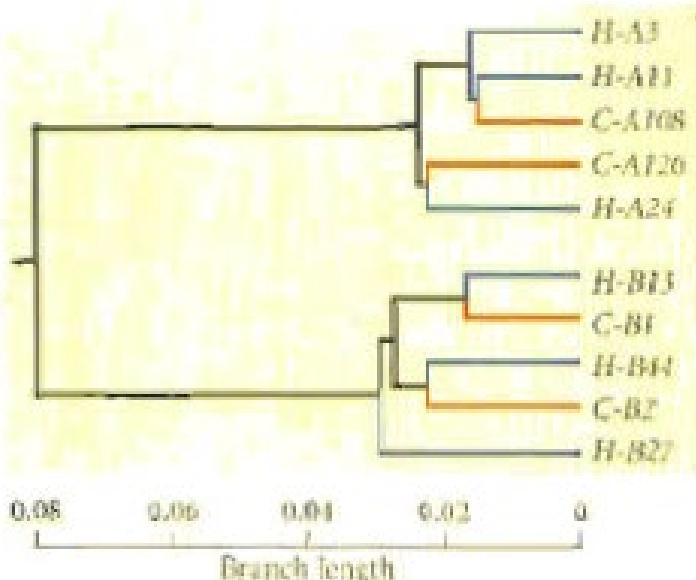
...at which point selection increases the frequency of A_1 toward fixation.



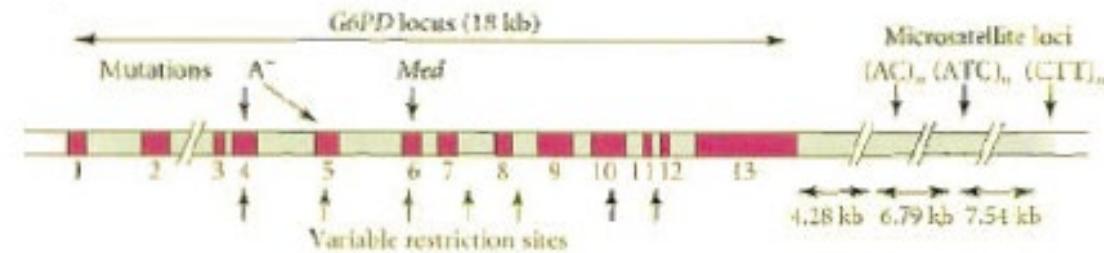
(A)



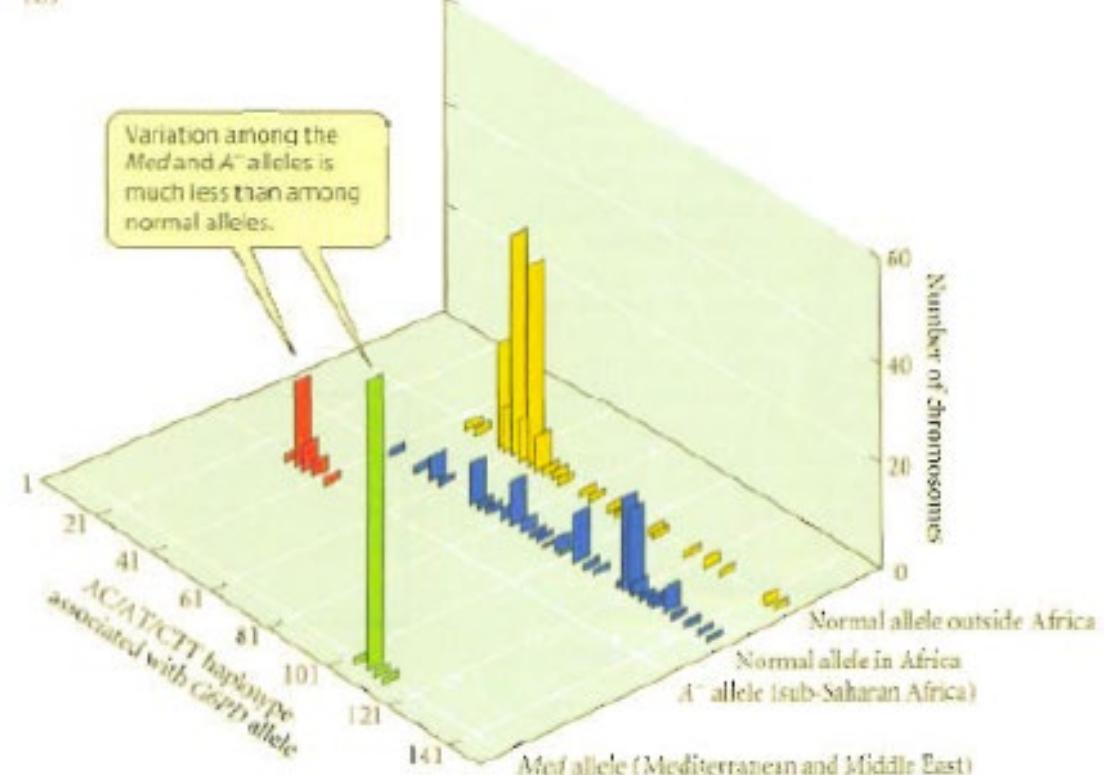
(B)



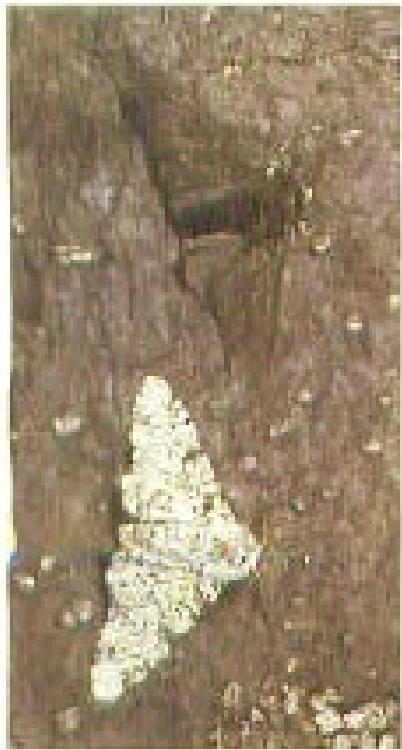
(A)



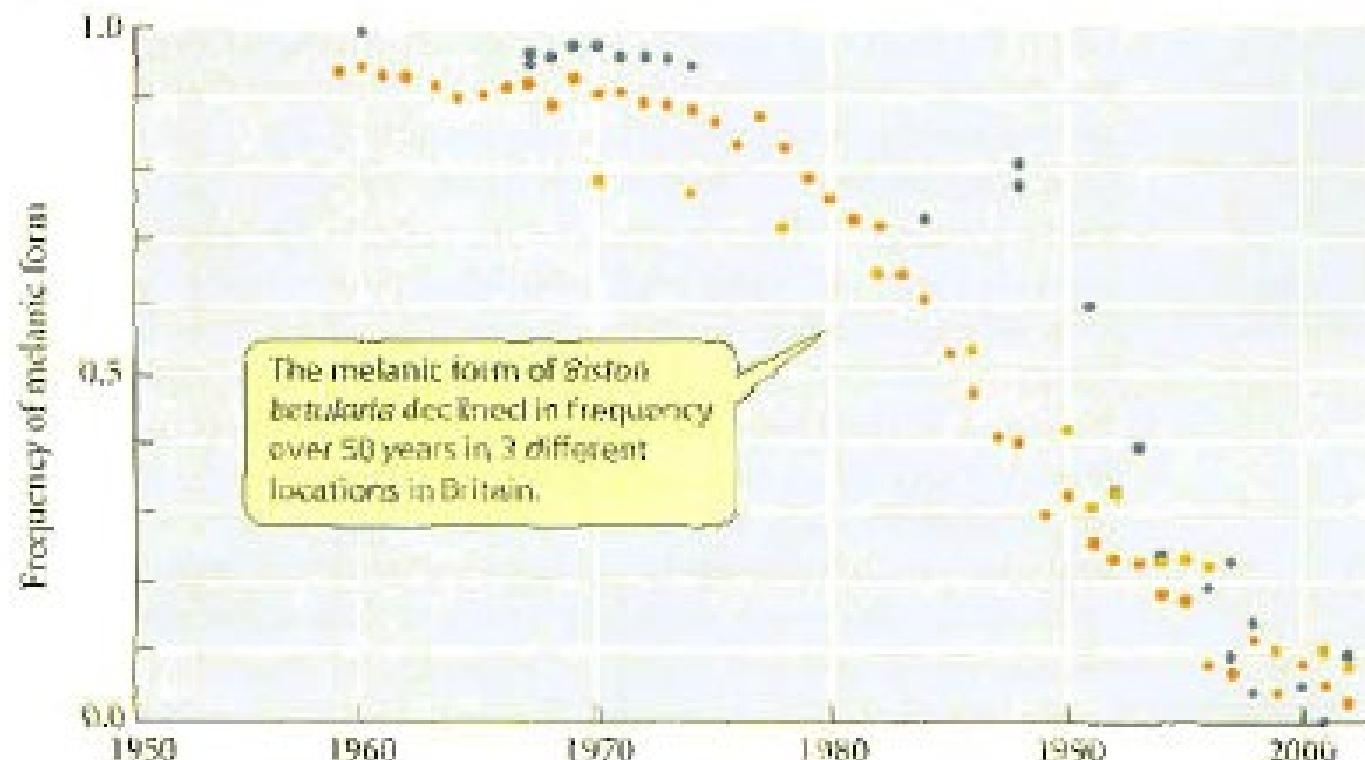
(B)



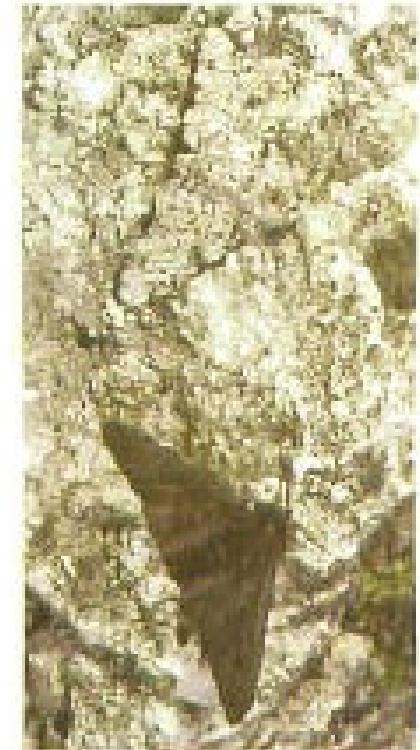
(A)



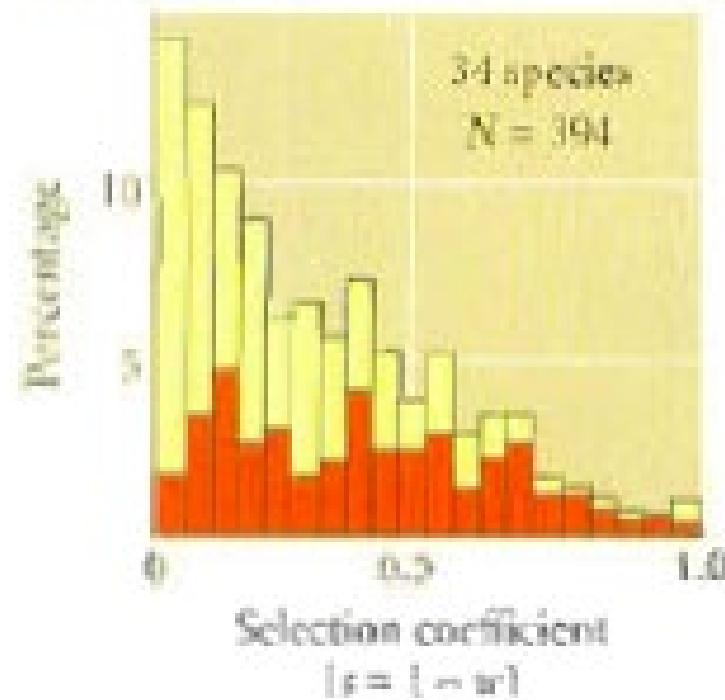
(B)



(C)



(A) Survival differences



(B) Reproductive differences

