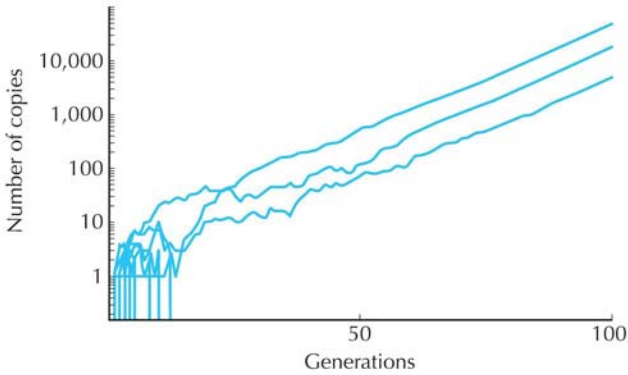

FIGURE 18.1. Most favorable mutations are lost by chance soon after they arise. The graph shows the number of copies of an allele with selective advantage s = 10% plotted against time. Even though the allele increases fitness, it survives in only 3 out of 30 replicates. In those cases, its numbers grow exponentially and so appear as straight lines on a log scale (*upper right*). The other 27 mutations are lost within a few generations (*lower left*). The probability of survival is $\sim 2s$ = 20%, so we would have expected 6 of 30 mutations to survive—rather more than the 3 that happened to survive in this example.