



FIGURE 23.16. The distribution of fitness changes as a result of selection and recombination. Selection increases the mean log fitness by an amount equal to the additive genetic variance in fitness (p. 462). If selection favors negative associations, it generates negative linkage disequilibria, which reduce the variance in log fitness (Fig. 23.15B) and, hence, the future response to directional selection. Recombination causes an immediate reduction in mean log fitness by breaking up favored gene combinations, but facilitates future adaptation by increasing the variance in log fitness. Modifiers that increase recombination can be favored because they are associated with adaptive variation in fitness, even though they also are associated with an immediate recombination load.

23.16, redrawn from Barton N. et al., *Science* **281**: 1986–1990, © 1998 American Association for the Advancement of Science