FIGURE 19.17. (*A*) Fixation of a favorable mutation at one locus will sweep variability out of a region of genome. Initially, a favorable mutation (*blue dot*) arises in one particular genome (*blue line, top row*). Eventually, the mutation fixes in the whole population, along with a fragment of the original genome. Thus, variation is swept out of a short region around the mutation. (*B*) The *solid lines* show the genealogy of four genes at the selected locus. These must coalesce during the sweep, because they all must carry the new mutation. The *dashed lines* show the ancestry of a sample of closely linked genes. Three of these stay with the selected mutation, but the leftmost lineage recombines away and has a different ancestry. (*C*) A simulation of genetic variability along 40 kb of genome soon after fixation of a favorable mutation at the center (20 kb), showing the nucleotide diversity π. Under the neutral theory, we expect $\pi = \theta = 4N_e\mu = 0.005$.

19.17C, redrawn from Kim Y. et al., *Genetics* **160:** 765–777, © 2002 Genetics Society of America

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