



**FIGURE 23.36.** Dominance of wild-type alleles arises naturally if the flux through a metabolic pathway shows diminishing returns with the level of enzyme activity. The *blue circle* shows the wild-type homozygote ( $A^+A^+$ ), which produces enough enzyme activity that it is not the limiting factor under normal conditions. *Red circles* show the effect of an allele  $A^1$ , which completely abolishes activity in the homozygote. It causes only a small reduction in flux in the heterozygote and so appears approximately recessive. In contrast, an allele of small effect ( $A^2$ ) has an approximately additive effect, with the heterozygote  $A^+A^2$  being close to halfway between the two homozygotes  $A^+A^+$  and  $A^2A^2$ .