



Figure 15.6

De Haas-van Alphen oscillations in silver. (Courtesy of A. S. Joseph.) The magnetic field is along a $\langle 111 \rangle$ direction. The two distinct periods are due to the neck and belly orbits indicated in the inset, the high-frequency oscillations coming from the larger belly orbit. By merely counting the number of high-frequency periods in a single low-frequency period (i.e., between the two arrows) one deduces directly that $A_{111}(\text{belly})/A_{111}(\text{neck}) = 51$. (Note that it is not necessary to know either the vertical or horizontal scales of the graph to determine this fundamental piece of geometrical information!)