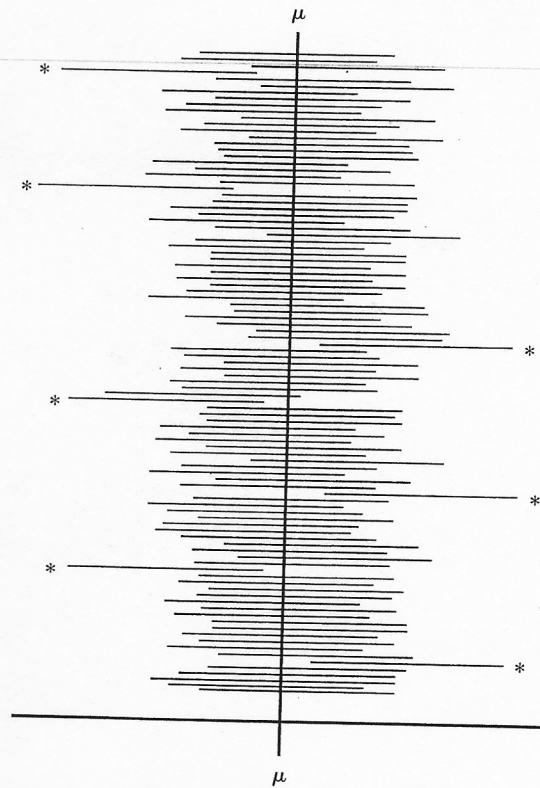


The 95% confidence interval for  $\mu$  in the foregoing example is (53.2, 56.2). It is tempting to say that there is a 95% chance that  $\mu$  is between 53.2 and 56.2. Do not yield to this temptation! The 95% refers to the long-run percentage of *all* possible samples resulting in an interval that includes  $\mu$ . That is, if we consider taking sample after sample from the population and use each one separately to compute a 95% confidence interval, in the long run roughly 95% of these intervals will capture  $\mu$ . Figure 7.5 illustrates this for 100 samples; 93 of the resulting intervals include  $\mu$ , whereas 7 do not. Without knowing the value of  $\mu$ , we cannot tell whether our interval (53.2, 56.2) is one of the good 95% or the bad 5% of all intervals that might result. *The confidence level refers to the method used to construct the interval rather than to any particular calculated interval.*



**Figure 7.5** 95% confidence intervals for  $\mu$  from 100 different samples (\* identifies an interval that does not include  $\mu$ )