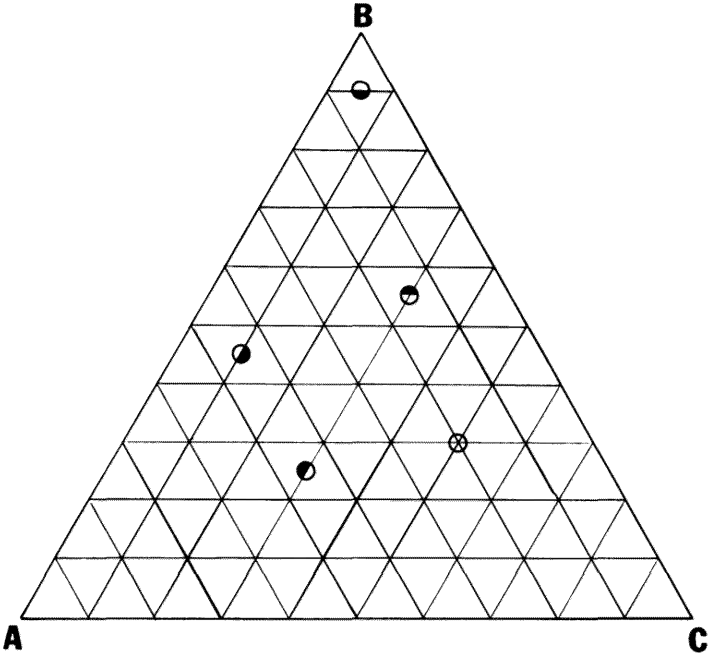

Figure 9.9 Each point of the triangular grid denotes a unique mixture of components A, B, and C. Circles denote 20% A, 30% B, 50% C (○); 15% A, 55% B, 30% C (◓); 5% A, 90% B, 5% C (◒); 45% A, 25% B, 30% C (◐); and 45% A, 45% B, 10% C (◕).

composition forming the single-phase compositions from the compositions forming two- or three-phase regions. Tie lines can also be drawn that will indicate which phases are in equilibrium when the composition of the samples falls outside of the homogeneous, single-phase region. The phase boundaries for this hypothetical system are shown in Figure 10 and the unique categories or diagram regions are labeled α, β, and γ.

From the foregoing discussion, it is evident that we can answer a variety of questions using the phase diagram in Figure 10. For example:

1. How much C can be added to A while maintaining the physical properties characteristic of phase α?
2. If 40% A, 20% B, and 40% C are mixed, will the sample exhibit only those properties characteristic of the β phase?
3. What is the maximum amount of B that can be accommodated within the β phase?