# Dynamic Multiphase Flow Instabilities

The descriptions of the preceding sections were predicated on the frequency of the oscillations being sufficiently small for all the components to track up and down their steady state characteristics. Thus the analysis is only applicable to those instabilities whose frequencies are low enough to lie within some quasistatic range. At higher frequency, the effective resistance could become a complex function of frequency and could depart significantly from the quasistatic resistance. It follows that there may be operating points at which the total *dynamic* resistance over some range of frequencies is negative. Then the system would be dynamically unstable even though it may be quasistatically stable. Such a description of dynamic instability is instructive but overly simplistic and a more systematic approach to this issue will be detailed in sections (Nrk), (Nrl) and (Nrm). It is nevertheless appropriate at this point to describe two examples of dynamic instabilities so that reference to these examples can be made during the description of the transfer function methodology.