state remains in phase A where the shock wave is stable. Once the shock strength exceeds this point, the shock wave becomes unstable and two waves are formed. The first wave has the characteristics of the phase transition pressure and the second wave represents the remainder of the input pressure. The shock profile, after allowing the two waves to separate, will have the features illustrated in Fig. 2(b). Beyond P_2, V_2, the material is completely transformed to phase B and the shock wave is stable once again.

Measurement of the free surface velocity of solids, after the shock wave has traversed the sample, serves to detect a phase transition and establish the transition pressure, if there is sufficient separation of the two waves. Liquids, however, do not lend themselves readily to this type of measurement; so a different technique is necessary.

Once the presence of the two-wave structure is established, the more difficult question remains as to the cause of the

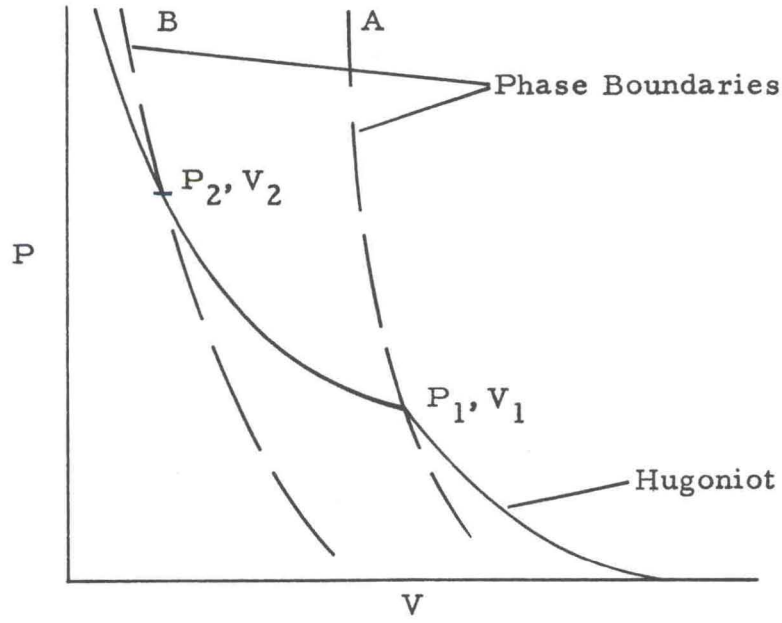

Fig. 3 Influence of phase boundaries on a P-V Hugoniot.