that one indeed obtains just such a shift, which again confirms the basic features of the picture.

Finally in Figure 3 is shown the shift of the absorption peak at high pressure for a series of alkali halides having both the NaCl and CsCl structure. One can see that there is a remarkable similarity in the high pressure slopes, all showing a large shift to lower energy. While there is as yet no theory which predicts the behavior at very small interatomic distance, it is clear that any such theory must predict that the ground state and the first excited state get closer together in energy under these conditions, quite independent of the crystal lattice.

We see, then, that the high pressure results allow us to choose between available simple theories although we must understand that these may be oversimplified. Secondly, the results present a test for any theory attempting to describe the potential energy surfaces at small interatomic distances.

The Approach to the Metallic State

A second type of problem where high pressure optical and electrical measurements make a unique contribution involves the approach to the metallic state at high pressure. As discussed earlier, an insulator or semiconductor involves a filled valence band, separated by an energy gap large compared with the thermal fluctuations in energy of the electrons, from an empty band available for electrical conduction. In the absence of impurities the process of supplying electrons capable of moving through the lattice involves exciting electrons across this gap. The smaller the gap the more likely that this can occur by thermal fluctuation and the higher the conductivity. This excitation is an