

FIGURE 10.16
The photoelectron spectrum of methane. The two bands observed in the photoelectron spectrum reflect the ionization of electrons from the $1t_2$ and $2a_1$ molecular orbitals. The energy difference between these two bands corresponds to the energy difference between the $1t_2$ and $2a_1$ molecular orbitals (see Figure 10.15). The bands are broad because ionization occurs to many different vibrational levels of the molecules.

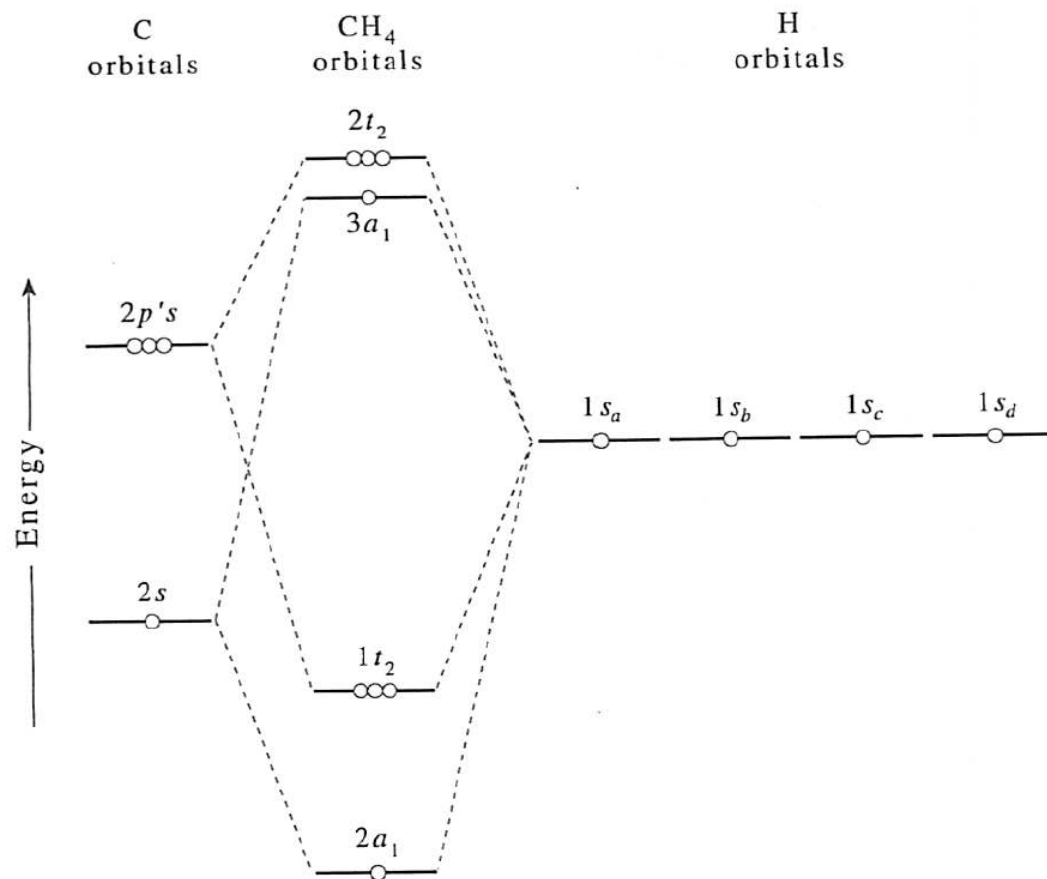


FIGURE 10.15
A molecular-orbital energy-level diagram for the valence electrons in CH_4 .