In 1911, James Franck and Gustav Hertz began a collaboration to investigate the nature of collisions of slow electrons with gas molecules that led to a series of carefully planned and executed experiments, culminating in their discovery of inelastic collisions of electrons with mercury vapor atoms in 1914. This paper tells the story of their collaboration and the eventual reinterpretation of their results as a confirmation of Niels Bohr's new atomic theory, largely as a result of experiments done in North America during the Great War.