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## Electron collisions in Mercury Vapor - The 9.8 Volt Loss

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the same time to accomplish as a certain laboratory experiment. The transfer values of projects versus laboratory experiments have been tested in seven student groups of known intelligence. It has been difficult to find concepts and skills that did not transfer better in the more intelligent groups from project than from experiment in the laboratory. In the groups of lower intelligence the reverse is true. These data have been treated statistically.

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### ELECTRON COLLISIONS IN MERCURY VAPOR — THE 9.8 VOLT LOSS

C. L. CROSS AND JOHN A. ELDRIDGE

Magnetic analysis of electrons which have passed through mercury vapor has shown the energy losses corresponding to the principle levels of the normal atom. A very prominent energy loss of 11.1 volts (and so greater than the ionization potential) is not accounted for. It is now shown that the energy loss of 9.8 volts is not due to a double 4.9 excitation.

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### MEAN FREE PATHS OF MOLECULES AND THE WAVE MECHANICS

JOHN A. ELDRIDGE

Direct experimental determination of the mean free paths of hydrogen, nitrogen and oxygen have led to a value of the effective cross section of the molecule between 4 and 5 times greater than that obtained from viscosity measurements. Massey and Mohr have shown that assuming the rigid sphere molecule the wave mechanics leads to a difference in the values; the theoretical ratio, however, is not greater than 2.

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