and grid of the probe and pass through the grid with a forward electric field into the drift space. If we assume an appreciable decrease in density in the solid helium wherever it is in contact with a surface, then such a density fluctuation would serve as a very effective trap for electrons near the grid. Thus, even with a forward electric field between the grid and collector the electrons would remain trapped at the grid, enter the grid-source circuit, and go undetected at the collector. At the present time we know of no evidence for the existence (nor of the absence) of the necessary density variation to account for this trap. This type of trapping mechanism is, however, consistent with the conclusion of Keshishev *et al.*[6] that one must minimize the number of grids present in order to obtain satisfactory mobility measurements.

Strictly speaking, mobility is only defined in the limit as the electric field strength approaches zero. Although Keshishev *et al.*[6] have "measured" the electron mobility in electric fields of 15 200 V/cm, they have established only a lower value for the zero-field mobility. It is desirable to make measurements at lower fields to determine the field dependence. Considering the problems in the present experiment which are associated with the presence of the grid and the use of polonium 210, one can suggest an alternate method to measure the cavity-localized electron mobility. It would use a two-electrode probe with a tritium-impregnated-titanium beta source. This would ensure creation of the electrons in the bulk of the drift space (their energy being large enough to escape any traps at the source electrode) and minimize the probability of radiation damage to the solid helium. The disadvantage of such a probe is the necessity to account for the effective region in which the cavity-localized electron is created.[21]

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*Present address: Department of Physiology and Biophysics, School of Medicine, University of Washington.

‡Alfred P. Sloan Research Fellow.

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