A. HYPERFINE STRUCTURE OF THE $^3P_1$ STATE OF MERCURY
BY DOUBLE-RESONANCE METHODS

Data were collected on the exact location of the even isotopes (isotope shift) to an accuracy of $1/100$, which is in good agreement with previous measurements made with a "magnetic scanning" technique. The double-resonance method, which was used to separate the overlapping optical lines, especially in the case of Hg$^{204}$, has proved successful.

Also, a new calibration of the scanning magnet was obtained by proton resonance, up to fields of 7000 gauss, and a check of the spatial homogeneity was performed.

In concluding the measurements on the even isotopes, further measurements will be made to determine the hyperfine structure of Hg$^{201}$ and Hg$^{199}$. They will yield the hyperfine structure between 3000-5000 gauss, which is the field corresponding to the microwave frequency (3100 mc) that was used.

Concurrently, radiofrequency equipment (50-144 mc) is being built for use with the same scanning magnet in order to determine the hyperfine structure of the odd isotopes at much lower fields (100-250 gauss).

We believe that these data will be sufficient to give a complete picture of the isotope shift and hyperfine structure within $1/100$ of the $^3P_1$ state of natural mercury at zero field.

A. C. Melissinos, P. L. Sagalyn