

calculated from the measurement of the spacings of the diffraction lines. Since the lines were broad, accurate measurements could not be made, and the calculated unit-cell dimension can be considered only as an approximation.

The unidentified aerial object was submitted to the Analytical Chemistry Section, where a portion was filed off and, from this, a semi-quantitative spectrographic analysis was obtained. The results of this analysis were provided to the Physical Chemistry Section, and were correlated with the X-ray diffraction interpretations.

EXPERIMENTAL RESULTS

The X-ray diffraction pattern obtained from the metallic portion of the sample was interpreted as representing diffractions from the following compounds:-

- 1) predominant constituent: face-centred cubic compound with unit-cell dimension, $a = 3.62 \text{ \AA}$ approximately; corresponds to a gamma-iron solid solution as found in austenitic steel (austenite), e.g., nickel-bearing and manganese-bearing types, and to meteoric iron (taenite),
- 2) trace constituents: quartz and calcite.

The X-ray diffraction pattern obtained from the small amounts of soft brown material on the surface of the aerial object was interpreted as follows:-