Two weak lines at 4927.7 and 4859.5A have the same frequency separation as the ^2F terms and may possibly represent the ^2FG combinations with 5^2G at 16,444 cm^{-1}.

By analogy with the other alkali earths no other unclassified Ra II lines would be expected in the region thus far photographed, with the possible exceptions of the second members of the sharp and diffuse series (around 2800–2600A). The remaining lines are probably mostly arc lines resulting from transitions between normal type electron configurations and configurations of type $(d)^2$, $(d\text{-}p)$, etc.

The six lines of wave-length 6200.4-($I=10$), 6337.0-(6), 6438.9-(4), 5406.6-(8), 5481.9-(6), and 5097.3-(6)A form a multiplet in the region where ^3PD of Ra I is expected. Further, the intervals 348:252 cm^{-1} for upper levels, and 2715:1376 cm^{-1} for lower levels indicate ^3D type and ^3P type levels. The total spread of the levels compares well with the corresponding ^2D and ^2P separations of Ra II.

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January 1, 1932.

Molecular Beams of Salt Vapors

Molecular beams are easily formed from vapors of the alkali halides. Sufficient vapor pressure is obtained to form a beam by heating the salt to the neighborhood of the melting point. The method of detection developed by J. B. Taylor (Zeits. f. Physik **57**, 242 (1929)) for beams of alkali vapors is found to work apparently quite as well for alkali halides. This method depends upon the formation and emission of positive ions from a positively charged, hot, tungsten filament. Presumably the salt molecules are dissociated by the filament and the action is then precisely as with the alkali vapor.

The beam of salt molecules has been tested for ions by passing it between parallel plates, on which a difference of potential was maintained. If ions are present, the number is too small to produce an observable deflection on a high sensitivity galvanometer.

When the beam is passed through an inhomogeneous magnetic field a considerable broadening is observed due to the magnetic moment of the rotating dipoles. It is hoped that by making certain assumptions, the dipole moment may be calculated.

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January 1, 1932.