



X-RAY SATELLITES OF L ALPHA LINES*

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(*Abstract*)

For the origin of x-ray satellites, which are faint lines accompanying many of the prominent diagram lines of the x-ray spectrum, there are two theories, neither of which is entirely satisfactory. Druyvesteyn's theory asserts that a satellite is emitted when a single electron jumps between multiply ionized states of the atom. Richtmyer suggests that satellites are produced by double-electron jumps between doubly ionized states. The recent evidence supporting these two theories is discussed.

A new x-ray vacuum spectrograph, constructed so as to minimize absorption in the long wavelength region 4.1A., was used to study the L_{α} -line of silver for the purpose of discovering and measuring new satellites and of verifying a fine structure of three of the satellites that have been observed on one plate by Richtmyer. Three films were taken on Ag L_{α} are discussed. All of these satellites previously measured were found on these films and their positions as measured with a low-power microscope agree well with measurements made by Richtmyer. On two of the films there was evidence that there are more satellites in the region of Ag L_{α} than has been previously assumed; however, since the measurements of these new satellites were not in good agreement on the two films, no conclusions can be made concerning the bearing that their existence might have on satellite theory until a more careful study is made of this region.

