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## Ultra Violet Absorption Spectra of Carotene and Vitamin A

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excited from the camera. Radiation was observed above the shield edge. Below the shield — the edge near the gun — no radiation was observed indicating that the effect above was not due to secondary resonance. The results indicate a mean life for the Cadmium  $2^3P_1$  state in excess of  $10^{-8}$  seconds.

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### THE SPECTRUM OF MERCURY EXCITED BY CANAL- RAY IMPACT

CARL FRISCHE

The spectrum of mercury is excited by hydrogen canal rays. The velocity of the canal rays is regulated by the voltage applied to a discharge tube and the canal-ray particles are allowed to shoot through a small hole in the cathode. Spectrograms were taken at voltages ranging from 1000 to 12,000 volts and the general characteristics of the spectra were studied. The spectra thus excited had very much the same characteristics as the electron spectrum just below ionization with the exception that several spark lines appeared at the lower voltages. The spark lines became more prominent as the voltage was increased although the relative intensity of the arc lines did not change appreciably. The polarization of the light was also investigated but no polarization was detected.

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### ULTRA-VIOLET ABSORPTION SPECTRA OF CARO- TENE AND VITAMIN A

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Using a sensitive photo electric spectrophotometer, carotene derived from carrots and dissolved in an oil, has been found to exhibit an absorption band in the region 325-330  $M\mu$ . An absorption band in this region has been shown by Morton & Heilbron to be characteristic of vitamin A in fats derived from animal sources. The appearance of this band in carotene from a vegetable source, establishes an even closer relationship between these two growth-promoting factors.

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