

Studies in Mass Spectrometry. Singly- and Doubly-charged Molecular Ions; Stability and Abundance

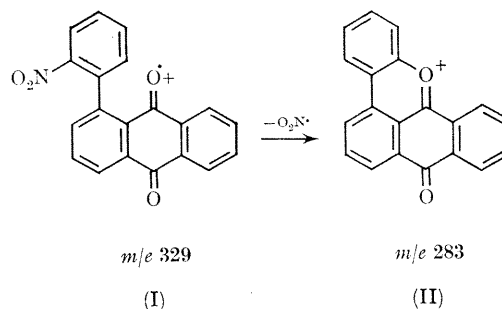
By E. S. WAIGHT

(Organic Chemistry Laboratories, Imperial College of Science and Technology, London, S.W.7)

Summary Attention is drawn to a doubly-charged molecular ion of higher abundance than that of the singly-charged ion.

SOLOMON and MANDELBAUM in a communication of the above title¹ have claimed the first example of a compound giving on electron impact a doubly-charged molecular ion of higher abundance than the singly-charged ion. In fact, a previous case has been reported.² 1-*o*-Nitrophenylanthra-9,10-quinone gives a doubly-charged molecular ion (m/e 329), (I), at an ionizing voltage of 70 eV. The weakness of the peak at m/e 329 may be attributed to the ready displacement of the *o*-nitro-group by electron-deficient oxygen to give the ion m/e 283, (II). It is conceivable that in the ion m/e 164.5 the two positive charges are located as far apart as possible, *i.e.* on the terminal

benzene rings, rather than on the oxygen atoms, thus diminishing the probability of loss of the nitro-group.



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¹ M. Solomon and A. Mandelbaum, *Chem. Comm.*, 1969, 890.

² E. S. Waight, "Some Newer Physical Methods in Structural Chemistry," ed. R. Bonnett and J. G. Davis, United Trade Press London, 1967, p. 67.