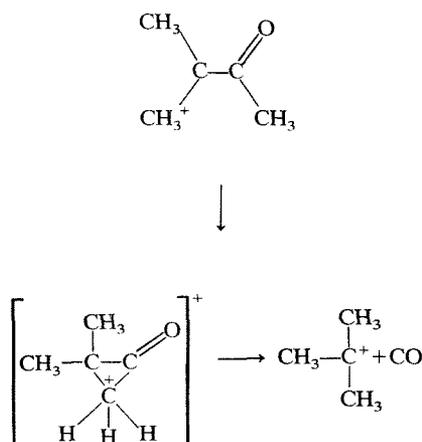


isomerization taking place in a weakly bonded complex between a (rearranging) carbenium ion and a CO molecule. In contrast, the dish-shaped peak for the CO elimination from metastable ions *b* and other α -acyl carbenium ions (see below) indicates a non-statistical distribution of the released kinetic energy and that the process is *always* associated with the release of kinetic energy ($T_{\min} \approx T_h$).⁵ Although no exact description of the process can be given without knowledge of the potential energy hypersurface of the system, it is likely that the transition state of the 1,2-methyl shift of ions *b* (probably resembling a 'corner' protonated dimethyl cyclopropanone) collapses directly to the products, bypassing the trimethylacetyl ion (Scheme 3). The loss of



Scheme 3

Table 1. Kinetic energy release (meV) associated with loss of CO from $(\text{CH}_3)_2\text{C}-\text{CO}-\text{R}''$ ions^a

R''	T _{0.1}	T _{0.2}	T _{0.5}	T _{0.8}	T _h
CD ₃ -	610	595	365	255	135
C ₆ H ₅ -	705	640	410	260	120
CH ₃ O-	1250	1160	990	855	680

^a For definition of T_x see Ref. 5.

CO from α -acyl ions by a 1,2-group shift is not restricted to the migration of a methyl group. The $[\text{M}-\text{CH}_3]^+$ ions *m/z* 147 in the mass spectrum of *tert* butyl phenyl ketone (4) lose a CO molecule via migration of a phenyl group. The signal observed for this reaction of metastable *m/z* 147 ions is flat-topped (Fig. 1(d)) and the corresponding T values are similar to those for CO loss from ions *b* (Table 1). Similarly, elimination of CO via 1,2-migration of a CH₃O- group is observed for metastable $[\text{M}-\text{CH}_3]^+$ ions *m/z* 101 in the mass spectrum of trimethylacetic acid methyl ester (5). The signal obtained for this process (Fig. 1(c)) is beautifully dish-shaped and corresponds to a large amount of kinetic energy released in a non-statistical manner (Table 1). The thermochemistry of the relevant ions in the mass spectra of 2, 4 and 5 is not yet known. Hence, no decision can be made at present as to whether the increase of T values for reaction (2) in the series R' = -CH₃, -C₆H₅, -OCH₃ reflects an increase of the activation energy for a 1,2-drift of these groups or a decrease in the reaction enthalpies of these processes.

Dear Sir,

The Use of the Abbreviation MS/MS

The International Union of Pure and Applied Chemistry has recently recommended¹ that the use of the initials MS should be limited to the term GC/MS to indicate the coupling of a gas chromatograph to a mass spectrometer and that, otherwise, the initials MS should not be used in mass spectrometry (MS) papers, because their use can be confusing. The American Society for Mass Spectrometry (ASMS) has recently re-established its Nomenclature Committee to advise, *inter alia*, on the use of initials as abbreviations.

The situation is somewhat confused because the term 'mass spectrometer' (MS) is used to describe magnetic sector (*ms*) instruments which should, properly, be described as 'momentum spectrometers' (*m.s.*). Further, when mass spectroscopists (*ms*) use *ms m.s.* to study metastable (*ms*) ions, they

often use multiple scans (MS) to obtain adequate signal-to-noise ratio. Some of the most senior *Ms ms* have gone against the International Union of Pure and Applied Chemistry's recommendation and are using the terms 'MS/MS' and 'ms/ms' to apply to a technique that can be used with certain multi-sector (*M.S.*) instruments.

Jargon of this kind is likely to become widespread if Editors of Journals, such as *Organic MS* do not insist that individual *ms* avoid the use of initials whenever possible and particularly when their use is contrary to the recommendations of our international body dealing with nomenclature in MS.

After all, it does not take long, only a few thousand *ms*,² to replace a sentence littered with initials by one written in simple English. It is my opinion, and that of many scientists (*m.s.*), that the indiscriminate use of initials in scientific manuscripts (*sm*) must stop! (*M.S.*)

Yours

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2. D. H. Williams, B. J. Stapleton and R. D. Bowen, *Tetrahedron Lett.* 2916 (1978).
3. Temperature of inlet system and ion source, 200°C; electron energy, 70 eV; accelerating voltage, 6 kV; ion source pressure, 10⁻⁶ Torr; analyser pressure, 3 × 10⁻⁹ Torr.
4. This is also seen from the MIKE spectra of various ions at *m/z* 85. The MIKE spectrum of *m/z* 85 ions from 1 contains only one signal due to loss of CO, and that of *m/z* 85 ions from 2 shows additional peaks for product ions *m/z* 67 (85-H₂O) and *m/z* 43 (85-C₃H₆). These product ions, shifted by 3 mass units, appear also in the MIKE spectrum of $[\text{M}-\text{CH}_3]^+$ ions of 3.
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Yours most sincerely (*MS*)

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Editor's Note: Ms is also used to indicate a female person of indeterminate marital status—Editor-in-Chief.

Publisher's Note: MS is manuscript in publishing parlance.