Interestingly, **1d** rearranges to *cis*-8,9-dihydroindenes[2,18] (and therefore probably passes through an activated complex related to conformation **5**)[1,22] whereas **1a–c** do not. Apparently two alkyl groups at C_9 (rather than only a *syn*-9-alkyl group) are required to eliminate rearrangement *via* conformation **5** as the major process. Additional data are required in order to define the cause of this behavior but we suggest that there is greater steric hindrance which is less easily relieved (a "buttressing effect"[23]) in the case of **1a–c**. That is, $\angle C_1C_9CH_3$ (α in structure **1**) may be smaller in the dialkyl derivatives than in **1d** (*cf.* $\angle$CCC in neopentane (109.5°) and isobutane[24] (111.2°) and $\angle C{=}CC$ in isobutylene[25] (122.4°) and propene[26] (124.3°)), and in addition, the force constant (k) for increasing α is probably substantially greater in the case of **1a–c** relative to **1d**; k for $\angle C_{sp^3}C_{sp^3}C_{sp^3}$ has been calculated to be 87% greater than that for $\angle C_{sp^3}C_{sp^3}H$[27] and k for $\angle C_{sp^2}C_{sp^2}C_{sp^3}$ (or $\angle C_{sp^3}C_{sp^2}C_{sp^3}$) has been taken to be 67% greater than that for $\angle C_{sp^3}C_{sp^2}H$ (or $\angle C_{sp^3}$-$C_{sp^2}H$).[28]

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(22) W. Grimme, *Chem. Ber.*, **100**, 113 (1967).
(23) For other examples of buttressing effects see (a) F. H. Westheimer in "Steric Effects in Organic Chemistry," M. S. Newman, Ed., John Wiley & Sons, Inc., New York, N. Y., 1956, Chapter 12; (b) J. P. Mazaleyrat and Z. Welvart, *Chem. Commun.*, 485 (1969), and references cited.
(24) D. R. Lide, Jr., *J. Chem. Phys.*, **33**, 1519 (1960).
(25) L. H. Scharpen and V. W. Laurie, *ibid.*, **39**, 1732 (1963).
(26) D. R. Lide, Jr., and D. Christensen, *ibid.*, **35**, 1374 (1961).
(27) (a) J. H. Schachtschneider and R. G. Snyder, *Spectrochim. Acta*, **19**, 117 (1963); (b) see J. B. Hendrickson, *J. Amer. Chem. Soc.*, **89**, 7036 (1967), for a lucid discussion.
(28) N. L. Allinger, J. A. Hirsch, M. A. Miller, and I. J. Tyminski, *ibid.*, **90**, 5773 (1968).

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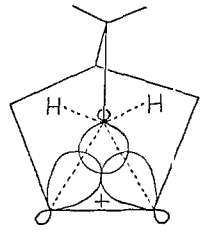
Additions and Corrections

Photolysis of 1,4-Dichlorobutane Sensitized by the n,π* Singlet State of Acetone [*J. Am. Chem. Soc.*, **91**, 4925 (1969)]. By MORTON A. GOLUB, Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California 94035.

At the end of the caption for Figure 1, ▵ should be replaced by △ .

Stable Carbonium Ions. LXXXVIII. Hydrogen-1 and Carbon-13 Nuclear Magnetic Resonance and Laser Raman Spectroscopic Study of the 2-Methyl-, 2-Ethyl-, and 2-Phenylnorbornyl Cation [*J. Am. Chem. Soc.*, **91**, 3958 (1969)]. By GEORGE A. OLAH, JOHN R. DEMEMBER, CHRISTINE Y. LIU, and ANTHONY M. WHITE, Department of Chemistry, Case Western Reserve University, Cleveland, Ohio 44106.

On page 3958, the figure was incorrectly reproduced. The corrected figure is shown below.



Book Reviews

The Chemistry of the Nitro and Nitroso Groups. Part I. Edited by HENRY FEUER, Department of Chemistry, Purdue University, Lafayette, Indiana. Interscience Publishers, John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1969. xii + 771 pp. 16 × 23.5 cm. $29.95.

There has not been a book on this subject before, notwithstanding the great technical as well as academic importance of nitro and nitroso compounds, and it can be judged that the appearance of such a book is overdue by the fact that this one requires two volumes (and even then is not encyclopedic). The subject is too large for proper coverage by one man, of course, and this first volume is written by ten different chemists in nine chapters.

The chapters cover not only classical, descriptive chemistry, but also photochemistry, spectroscopy (two chapters), and "theoretical aspects of C–NO and C–NO_2 bonds." Some verge on the monumental (that on nitronic acids and esters has 138 pages and lists 490 references). The weakness of so many books consisting of contributed chapters—uneveness of presentation and coverage—is quite apparent, however. The chapter on theoretical aspects does not even mention the dimers of nitroso compounds and their intriguing structure, yet it discusses amine oxides and nitroxides, which are not really relevant to the book.

George Wright's chapter on the nitramino group stands out as particularly well written. It is critical, thorough, and includes both historical perspective and lots of usable information in tables. Arnold Nielsen's chapter on nitronic acids and esters shares honors with Wright's, and the two together make the book really worth having.