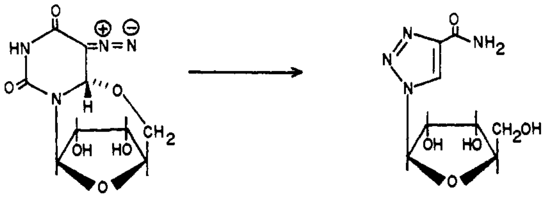
tive hydroxylamine–ferric chloride test.[5] There remained one unassigned absorption peak in the pmr spectra which was assumed to be an aromatic ring proton on the basis of its chemical shift (δ 8.80, s, 1 H). These data were consistent with a disubstituted, five-membered heterocycle with three ring nitrogens (triazole). The formation of a triazole ring could occur by loss of the carbonyl group in the C-2 position of I followed by annulation between N-1 and the diazo group. If ring opening and rearrangement had occurred in the proposed manner then the structure for II



I II

must be 1-(β-D-ribofuranosyl)-1,2,3-triazole-4-carboxamide. The synthesis of this nucleoside had been previously reported[6,7] and a rigorous comparison with an authentic sample prepared by the procedure in ref 6 established that the compounds were identical in every respect.[8]

We have established that the reaction of I proceeds with the loss of a ring carbonyl group in preference to diatomic nitrogen and to the best of our knowledge a reaction of this type has not been previously reported in the literature. The mechanism of this reaction is under active investigation in our laboratory using isotopes and derivatives which are closely related to I.

The ring contraction of I represents a convenient route to triazole nucleosides having other carbohydrate moieties[9] which would be accessible only under difficult isolation procedures from complex reaction mixtures; *e.g.*, a report has recently appeared[7a] describing the isolation of three isomeric triazole ribosides from an acid-catalyzed fusion reaction. It is of interest that the same type of acid-catalyzed fusion reaction using a 2-deoxyribose derivative[9] would be expected to give six different triazole nucleosides.

Acknowledgment. The authors wish to thank Dr. J. A. McCloskey for the mass spectral data reported in this communication. This investigation was supported by Public Health Service Research Grant No. CA 11147-04 from the National Cancer Institute.

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[5] R. L. Shriner, R. C. Fuson, and D. Y. Curtin, "The Systematic Identification of Organic Compounds," Wiley, New York, N. Y., 1964, p 137.

[6] G. Alonso, M. T. Garcia-Lopez, G. Garcia-Muñoz, R. Madroñero, and M. Rico, *J. Heterocycl. Chem.*, 7, 1269 (1970).

[7] (a) F. A. Lehmkuhl, J. T. Witkowski, and R. K. Robins, *J. Heterocycl. Chem.*, 9, 1195 (1972); (b) O. Makabe, S. Fukatsu, and S. Umezawa, *Bull. Chem. Soc. Jap.*, 45, 2577 (1972).

[8] The following comparisons were made: melting point, mixture melting point, tlc, α, ir, uv, pmr, and mass spectra (both CI and EI).

[9] Evidence for the general nature of this rearrangement with respect to the carbohydrate moiety was obtained when $O^{5'}$-6(*S*)-cyclo-5-diazo-2′-deoxyuridine[1] was converted to a compound whose spectral data and empirical formula are consistent with the structure 1-(2-deoxy-β-D-ribofuranosyl)-1,2,3-triazole-4-carboxamide.

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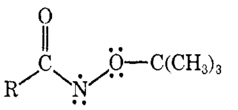
Additions and Corrections

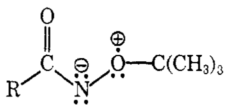
Thermal Decomposition of *N*-Nitrosohydroxylamines. V. Denitrosation and *N-tert*-Butoxyamido Radicals [*J. Amer. Chem. Soc.*, **94**, 2514 (1972)]. By T. KOENIG,* J. A. HOOBLER, and W. R. MABEY, Department of Chemistry, University of Oregon, Eugene, Oregon 97403.

Structures **8a**, **8b**, and **9** (below) did not appear in the original publication.

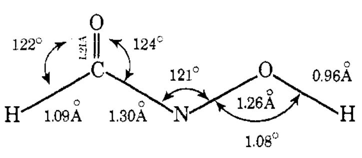
Also, Professor Danen has informed us that the esr spectrum referred to in footnote 8 was that of ethyl (*N-tert*-butoxy)carbamido radical rather than the propionamido species mentioned.



↔



8a **8b**



9

Radiation Chemistry of Nucleic Acids. Isolation and Characterization of Thymine Glycols [*J. Amer. Chem. Soc.*, **94**, 4764 (1972)]. By BO-SUP HAHN and SHIH YI WANG,* Department of Biochemistry, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland 21205.

The nmr spectra were carried out with an external standard rather than an internal standard. For internal standards the δ values should be corrected to read: The trans isomer (I) has peaks for CH_3 (s, δ 1.28), C(6)H (d, δ 4.38, J = 2.0 Hz), C(5)OH (s, δ 5.73), C(6)OH (m, δ 6.28), N(1)H (d, δ 8.00, J = 2.0 Hz), and N(3)H (s, δ 9.33) in the nmr spectrum [in $(CD_3)_2SO$ at 100 MHz with internal standard $(CH_3)_4Si$]. Compound III has peaks for CH_3 (s, δ 1.28), C(6)H (s, δ 7.25), C(5)OH (br, δ 6.86), and N(3)H (br, δ 9.28) in the nmr spectrum.

The Use of Proton and Carbon-13 Nuclear Magnetic Resonance for Assignment of the Glycosylation Site in

3- and 5-Substituted 1-β-D-Ribofuranosyl-1,2,4-triazoles [*J. Amer. Chem.*, **94,** 5894 (1972)]. By GEORGE P. KREISHMAN, JOSEPH T. WITKOWSKI, ROLAND K. ROBINS, and MARTIN P. SCHWEIZER,* ICN Nucleic Acid Research Institute, Irvine, California 92664.

In footnote *d* of Table I, β should be given as −2 ppm.

Mechanisms of Chemiluminescent Electron-Transfer Reactions. IV, V, and VI [*J. Amer. Chem. Soc.*, **94,** 6317, 6324, 6331 (1972)]. By RICHARD BEZMAN and LARRY R. FAULKNER,* Coolidge Chemical Laboratory, Harvard University, Cambridge, Massachusetts 02138.

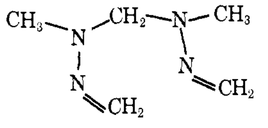
We have recently discovered an error in our calibration of the photometric system used in the work reported in the three papers listed above. Instead of the previously reported value of 6.46×10^{10} photons/sec-μA, the system's true sensitivity is 3.48×10^{11} photons/sec-μA. This discovery requires upward revision in some of the data at hand. All emission efficiencies, ϕ_{ecl}, all values of α and β, and all estimates of triplet yields, ϕ_t, should be multiplied by 5.4. Estimates of fractional triplet participation in triplet–triplet annihilation and the suggested equilibrium constant for 10-MP dimer cation formation are unchanged. Fortunately, none of the basic mechanistic conclusions are vitiated by this revision, and some are actually reinforced.

Stable Uranium(IV) Alkyl and Aryl Complexes [*J. Amer. Chem. Soc.*, **94,** 6545 (1972)]. By TOBIN J. MARKS* and AFIF M. SEYAM, Department of Chemistry, Northwestern University, Evanston, Illinois 60201

On page 6546, line 18 of column 1 should begin: "half-lives of 2–96 hr at 72° . . . ."

Electrochemical Oxidation of Tetraalkylhydrazines. Effects of Hydrazine and Hydrazine Radical Cation Geometry [*J. Amer. Chem. Soc.*, **94,** 7108 (1972)]. By S. F. NELSEN* and P. J. HINTZ, Department of Chemistry, University of Wisconsin, Madison, Wisconsin 53706.

Structure **29**, supposed by us to be *endo*-methylene-1,4-dimethylhexahydro-1,2,4,5-tetrazine, is undoubtedly incorrect; we actually had the isomer methylenebis(*N*-methyl-*N'*-methylenehydrazine), as given below.



29

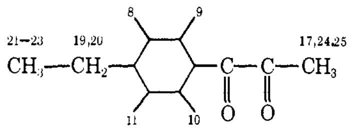
Our data check well with that of the literature [E. Schmitz and R. Ohme, *Monatsber. Deut. Akad. Wiss., Berlin*, **6,** 425 (1964); Dr. Hammerum has determined the nmr spectrum of authentic **29**, and it checks well with ours, as well as with other formaldehyde hydrazones: S. Hammerum, *Tetrahedron Lett.*, 949 (1972)]. We thank Dr. Steen Hammerum for pointing out our error. It is not surprising, then, that **29** gives an irreversable oxidation wave, since it is not a tetraalkylhydrazine after all.

A Kinetic Investigation of Some Electronic and Steric Factors in Oxidative Addition Reactions to Vaska's Compound [*J. Amer. Chem. Soc.*, **94,** 7364 (1972)]. By R. UGO,* A. PASINI, A. FUSI, and S. CENINI, Istituto di Chimica Generale ed Inorganica, C.N.R. Centre, Milan University, Milan, Italy.

In Table III, the first seven entries in the Z column should read OCH_3 rather than CH_3.

Electron Spin Resonance Study of Air Oxidation of *p*-Alkyl-Substituted Phenones in Hexamethylphosphoramide. Orientation of Carbanion Formation. Extension to the Oxidation of Aromatic Cyano, Nitro, and Aldehydo Compounds [*J. Amer. Chem. Soc.*, **94,** 7520 (1972)]. By JACQUES-EMILE DUBOIS* and GUY DODIN, Laboratoire de Chimie Organique Physique de l'Université Paris VII, associe au Centre national de la Recherche Scientifique, Paris, France.

The fourth structure in Chart I is incorrect. The correct structure is given below.



On page 7525, in line 9 of column 2 "increase" should read "decrease."

A Direct Method for Determining Light Intensity Dependent Rates. Triplet–Triplet Annihilation in Benzophenone [*J. Amer. Chem. Soc.*, **94,** 8584 (1972)]. By RONALD E. BROWN, LAWRENCE A. SINGER,* Department of Chemistry, and JOEL H. PARKS, Department of Physics and Electrical Engineering, University of Southern California, Los Angeles, California 90007.

On page 8584, line 25 of column 2 should read: "and α is a constant, which follows from the rate equation for singlet population and the intersystem crossing efficiency, $S_1 \rightarrow T_1$, and thereby converts $I(0,0)$ into units of triplet concentration." Equation 6 should read

$$n(t) \equiv \int_0^l n(t,x)\mathrm{d}x = [\alpha I(0,0)e^{-k_1 t}(1 - e^{-\beta l})]/\beta$$

On page 8585, line 7 of column 1 should read: "where *S* is the cross-sectional area of the irradiated volume." In eq 14, the differential "d*t*" was omitted. Equation 24 should read:

$$\mathrm{f}(x) = I_\nu/I_\nu(0) = \{\ln [1 + \Delta(1 - e^{-x})]\}[\Delta(e^x - 1)]^{-1}$$

In footnote 6, line 11, replace *X* with *x*. The abscissa in Figure 1 should read "Exponential Factor $k_1t = x$."

These corrections have no effect on the results or conclusions.

A Novel Photochemical Rearrangement of Aryl-6,7-dioxabicyclo[3.2.2]nona-3,8-dien-2-one into Tricyclic Lactone [*J. Amer. Chem. Soc.*, **94,** 9280 (1972)]. By T. TEZUKA,* R. MIYAMOTO, T. MUKAI, C. KABUTO, and Y. KITAHARA, Department of Chemistry, Faculty of Science, Tohoku University, Sendai, Japan.