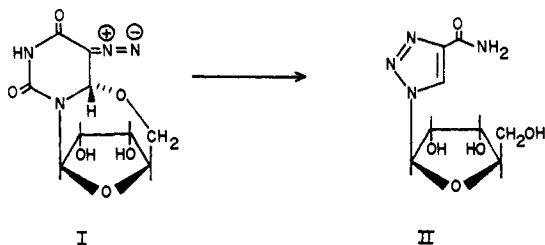


tive hydroxylamine–ferric chloride test.⁵ There remained one unassigned absorption peak in the pmr spectra which was assumed to be an aromatic ring proton on the basis of its chemical shift (δ 8.80, s, 1 H). These data were consistent with a disubstituted, five-membered heterocycle with three ring nitrogens (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



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

(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. Madroño, 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).

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 moieties⁹ 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 derivative⁹ 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.

(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'-deoxyuridine¹ 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.

T. Craig Thurber, Leroy B. Townsend*

Department of Chemistry and
Department of Biopharmaceutical Sciences
University of Utah
Salt Lake City, Utah 84112

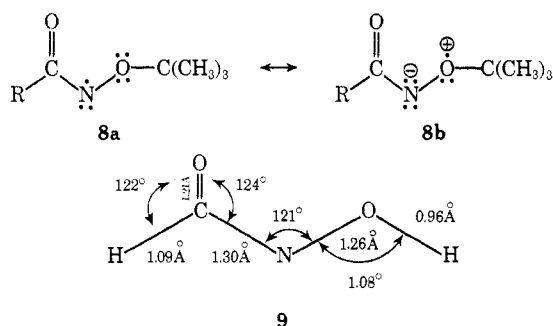
Received February 6, 1973

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. HOUBLER, 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.

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 CH₃ (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 (CD₃)₂SO at 100 MHz with internal standard (CH₃)₄Si]. Compound III has peaks for CH₃ (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