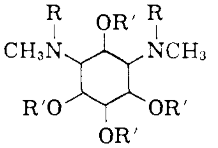
eight possible stereoisomers for such a compound. One of these isomers, the all *trans* form which would be N,N′-dimethylstreptamine, has been eliminated as a possibility by comparison of N,N′-dimethylactinamine with N,N′-tetramethylstreptamine. Methylation of actinamine by Witkop's procedure[4] gave N,N′-dimethylactinamine dihydrochloride (the dihydrochloride of IV), m.p. 256–258° dec., optically inactive. *Anal.* Calcd. for $C_{10}H_{22}N_2O_4 \cdot 2HCl$ $(4CH_3N)$: C, 39.09; H, 7.82; N, 9.13; CH_3N, 19.4; mol. wt., 307.2. Found: C, 38.91; H, 7.85; N, 9.01; CH_3N, 18.3; mol. wt. (electr. titr.), 318. This compound differed from N,N′-tetramethylstreptamine dihydrochloride[4] in infrared spectrum and melting point and mixture melting points were depressed. The two compounds would be identical if actinamine were the all-*trans* isomer.



I, R = R′ = H
II, R = R′ = CH_3CO
III, R = CH_3CO, R = H
IV, R = CH_3, R′ = H

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[4] G. F. Holland, R. C. Durant, S. L. Friess and B. Witkop, *J. Am. Chem. Soc.*, **80**, 603 (1958).

BOOK REVIEWS

Progress in Reaction Kinetics. Volume 1. Edited by G. PORTER, F.R.S., Professor of Physical Chemistry, University of Sheffield. Assistant Editor, B. STEVENS, M.A., D. Phil., University of Sheffield. Pergamon Press Ltd., Headington Hill Hall, Oxford, England. 1961. viii + 276 pp. 15.5 × 23.5 cm. Price, $12.00.

The appearance of the present volume, the first in a new series, is a sign of the growing importance of chemical kinetics in current research. The stated purpose of this series is to provide authoritative reviews of special topics in reaction kinetics and also to provide a quasi-continuous inventory of "good" rate constants. To this end the editor has drawn on a series of quite diverse experts to prepare the present group of nine articles. The experts are all quite expert and active in their fields and the articles are all clearly written if not always easily readable.

In the field of gas phase reactions, F. Kaufman has prepared a long, comprehensive article on the "Reactions of Oxygen Atoms," while J. A. Kerr and A. F. Trotman-Dickenson have done a somewhat cursory one on "Alkyl Radicals." Both of these are replete with rate constants as well as Arrhenius parameters obtained from more or less conventional studies. In a much more tentative and speculative fashion V. Voevodsky and V. N. Kondratiev present values for rate parameters for steps occurring in branching chain reactions. The reactions considered are the $2H_2+O_2$ explosions as affected by small amounts of additive RH.

The new and growing field of ion-molecule reactions is discussed in considerable detail by F. W. Lampe, J. L. Franklin and F. H. Field. The data here are as yet very crude as are also the energetics. However, the unusual species produced and the very large rate constants involved are sure to presage continued interest and activity.

In the field of solution kinetics, R. M. Noyes has given a very clear and thorough exposition of the intricacies of diffusion-controlled processes and the theory of the establishment of stationary diffusion fields. C. W. Davies reviews the status of the Brönsted–Debye–Hückel treatment of salt effects on ionic reactions and summarizes some of the best data for these systems, in most cases recently obtained. His conclusion, in agreement with Scatchard, is that the theory is in good shape if corrected for ion-pairing. He points out, however, some still unresolved anomalies.

The study of the fast reactions of photochemically excited species in solution by A. Weller is interesting although very specialized in being limited to aromatic systems. Y. Pocker has attempted to clarify the somewhat troubled waters of $S_Ni(i = 1,2)$ in his summary of some of the recent and occasionally conflicting studies of nucleophilic substitution at saturated carbon atoms. Some of the difficulty is here skirted by restricting the discussion to non-hydroxylic solvents.

The final article by L. Peller and R. A. Alberty is an overly short discussion of the conventional physical chemistry of enzyme kinetics. This is perhaps a reflection of the complexity of these systems and the need to bring many points of view to bear on them to obtain even a simple interpretation of the kinetic data.

The present series will be of interest to research workers and students starting work in any of the fields covered. The present articles, however, are not sufficiently detailed to be of great interest to experts already at work in these fields. Particularly in the area of selecting and analyzing data critically, the present series with one or two exceptions is weak. Such a series is in direct competition with *Annual Reviews*, *Chemical Reviews* and a number of other review journals and it is hoped that the editor will in future series sharpen the distinctions between them that will make this a more valuable addition to the field.

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Advances in the Chemistry of the Coordination Compounds. Proceedings of the Sixth International Conference on Coordination Chemistry, held at Wayne State University, Detroit, Michigan, August 27 to September 1, 1961. Edited by STANLEY KIRSCHNER, Professor of Inorganic Chemistry at Wayne State University. The Macmillan Company, 60 Fifth Avenue, New York 11, N. Y. xii + 682 pp. 16.5 × 24.5 cm. Price, $15.00.

The conference was divided into series of eight lectures and sixty-eight papers covering a wide range of interest, not only to coördination chemists but to those on the fringes such as bio, catalytic organic and analytical.

It is, of course, impossible to list the papers, but a review of the lectures may show the scope of the conference. The lecture on bonding by C. T. Ballhausen compares the now familiar crystal field and molecular orbital approaches and in particular reviews methods for, and significance of, the determination of the extent of mixing of metal and ligand orbitals. R. E. Connick reviews some of the data on water exchange with aquo ions, then presents some of his data on rates of interconversion of a series of chloroaquoruthenium(III) ions. In a particularly lucid and informative lecture