ppm from TMS) δ 215.8 (s, MeC=O), 99.6 (d, C-1'), 16.6 (q, C-6'); CD (EtOH) 269 nm ([θ], (deg cm²)/mol, 0), 287 (-12.1), 303 (0), 320 sh (+5.22), 344 (+7.60). It was identical with natural daunorubicin hydrochloride¹⁰ on direct comparison by these methods and by bioassay as an inhibitor of DNA and RNA synthesis in cultured L1210 murine lymphoid leukemia cells.

Acknowledgment. This work was performed under the auspices of Drug Research and Development, Division of Cancer Treatment, National Cancer Institute, National Institutes of Health, Department of Health, Education and Welfare, Contract No. N01-CM-33742. The opinions expressed in this paper are those of the authors and not necessarily those of the NCI. We are indebted to Dr. Harry B. Wood, Jr., DRD, NCI, for a sample of natural daunorubicin hydrochloride.

References

- J. Bernard, R. Paul, M. Boiron, C. Jacquillat, and R. Maral, Ed., "Rubidomycin," Springer-Verlag, New York, N. Y., 1969.
- (2) R. B. Livingston and S. K. Carter, Chemotherapy Fact

- Sheet, "Daunomycin," National Cancer Institute, Bethesda, Md., 1970.
- (3) F. Arcamone, G. Franceschi, and S. Penco, Tetrahedron Lett., 1007 (1969).
- (4) F. J. Rauscher, Report of the Director, National Cancer Program, Jan 1973; quoted in Chem. Eng. News, 21 (Sept 1973).
- (5) J. P. Marsh, Jr., C. W. Mosher, E. M. Acton, and L. Goodman, Chem. Commun., 973 (1967).
- (6) C. M. Wong, R. Schwenk, D. Popien, and T.-L. Ho, Can. J. Chem., 51, 466 (1973).
- (7) F. Arcamone, W. Barbieri, G. Franceschi, and S. Penco, Chim. Ind. (Milan), 51, 834 (1969).
- (8) F. Arcamone, G. Cassinelli, G. Franceschi, P. Orezzi, and R. Mondelli, *Tetrahedron Lett.*, 3353 (1968).
- (9) K. Yamamoto, E. M. Acton, and D. W. Henry, J. Med. Chem., 15, 872 (1972).
- (10) F. Arcamone, G. Franceschi, P. Orezzi, G. Cassinelli, W. Barbiere, and R. Mondelli, J. Amer. Chem. Soc., 86, 5334 (1964).

Edward M. Acton,* Allan N. Fujiwara, David W. Henry Bio-Organic Chemistry Department, Life Sciences Division Stanford Research Institute, Menlo Park. California 94025 Received February 7, 1974

Book Reviews

Protein Turnover. Ciba Foundation Symposium 9 (new series). American Elsevier, New York, N. Y. 1973. Aspects of protein metabolism with 14 contributors. viii + 319 pp. 16 × 24 cm. \$16.50.

The Ciba Foundation sponsored a Symposium on Protein Turnover held at the Ciba Foundation, London, May 9-11, 1972. The 14 papers presented with their discussions report experimental results of clinical significance as well as observation on patients with renal, hepatic, or other disorders. The topics included in this Symposium dealt with cell surface receptors in immunoglobulin transport and catabolism; the role of kidney in serum protein metabolism; new two-tracer techniques for plasma protein turnover; acute phase plasma proteins in wound healing; mass balance measurement of fibrinogen synthesis; disappearance time-curve analyses for labeled proteins; amino acid and hepatotoxic agents on albumin synthesis, polysomal aggregation, and RNA turnover; regulatory factors in plasma protein synthesis; neuraminadase (IV) effects on fibrinogen turnover; labeled plasmin generation and venous injury; factors affecting albumin, fibrinogen, and transferrin synthesis; IgM turnover in man; complement in membranoproliferative glomerulonephritis; complement and properdin systems disorders; a contributors list and subject index are included as well as a general discussion of criteria of viability in perfused livers.

All of the papers are well documented and allow the nonexpert in these areas to attain a feeling of the significance of these works. The individual papers vary in length but all are clearly presented and offer many graphic presentations of data. Each paper is preceded by an abstract and the discussion sessions with questions, answers, and comments follow each article.

The intended purpose of the Symposium was to bring together clinicians and scientists interested in different aspects of protein turnover and this objective has been achieved. The book contains considerable material of interest to clinicians and offers stimulating presentations which could be useful to individuals studying biosynthesis and metabolism of proteins and their intracellular biochemistry.

College of Pharmacy Division of Medicinal Chemistry The Ohio State University Columbus, Ohio 43210 Neil J. Lewis