



FIG. 1. Titration curves of bovine serum albumin (BSA). Curve 1—no added Zn. Curve 2—0.0025 *M* Zn. Curve 3—0.0029 *M* Zn. Curve 4—0.0075 *M* Zn. All solutions contained about 2.2% BSA and 0.15 *M* KNO_3 . The molecular weight of BSA has been taken as 69,000.

between pH 5.6 and pH 9 the two titration curves are virtually superimposable.

An accurate way to observe differences between the purified and commercial preparations with respect to

metal binding is to measure the effect of the metal ion on the titration curves. Large pH drops accompany the binding of metal (5, 6).

Figure 1 shows a portion of the titration curves of bovine serum albumin before and after purification, in the presence of 0.15 *M* KNO_3 and varying amounts of $\text{Zn}(\text{NO}_3)_2$. These curves show clearly that no appreciable difference has resulted from the removal of the impurity. It can therefore be concluded that the interpretation of metal binding studies on bovine serum albumin previously reported from this laboratory is not invalidated by the findings of Feldman and Havill.

A more complete study of the titration curves of bovine serum albumin is currently in progress and will be reported elsewhere at a later date.

CHARLES TANFORD
WILLIAM S. SHORE

Department of Chemistry
State University of Iowa

References

1. FELDMAN, I., and HAVILL, J. R. *Science*, **116**, 691 (1952).
2. TANFORD, C. *J. Am. Chem. Soc.*, **74**, 211 (1952).
3. ONCLEY, J. L., and DINTZIS, H. M. Paper presented at the 122nd National Meeting of the American Chemical Society, Atlantic City, N. J., September 1952.
4. SAFFRAN, M., and DENSTEDT, O. F. *J. Biol. Chem.*, **175**, 849 (1948).
5. MARTELL, A. E., and CALVIN, M. *Chemistry of the Metal Chelate Compounds*. New York: Prentice-Hall, 39 (1952).
6. GURD, F. R. N., and GOODMAN, D. S. *J. Am. Chem. Soc.*, **74**, 670 (1952).

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Scientific Book Register

Notes on Qualitative Analysis (Fenton). Revised by B. C. Saunders. New York: Cambridge Univ. Press, 1953. 126 pp. Illus. \$2.75.

Beginning Algebra for College Students. 2nd ed. Lloyd L. Lowenstein. New York: Wiley; London: Chapman & Hall, 1953. 279 pp. Illus. \$3.50.

A Theoretical Study of Interphase Mass Transfer. Robert W. Schrage. New York: Columbia Univ. Press, 1953. 103 pp. Illus. \$3.50.

Atlas of the Skeletal Development of the Rat, Normal and Hypophysectomized, Vols. I and II. Hermann Becks and Herbert M. Evans. Berkeley, Calif.: American Institute of Dental Medicine, 1953. 145 pp. incl. photomicrographs and roentgenographic contact reproductions. \$48.00.

Synchros, Self-Synchronous Devices and Electrical Servo-Mechanisms. Leonard R. Crow. Vincennes, Ind.: Scientific Book Pub., 1953. 222 pp. Illus.

Sewerage and Sewage Treatment. 7th ed. Harold E. Babbitt. New York: Wiley; London: Chapman & Hall, 1953. 674 pp. Illus. \$8.00.

Spadework in Archaeology. Leonard Woolley. New York: Philosophical Library, 1953. 124 pp. Illus. + plates. \$4.75.

An Introduction to Statistics. Charles E. Clark. New York: Wiley; London: Chapman & Hall, 1953. 266 pp. Illus. \$4.25.

A Brief Introduction to Organic Chemistry. Leland A. Underkoffler. New York-London: Van Nostrand, 1953. 352 pp. Illus. \$4.25.

Man and His Physical Universe: An Integrated Course in Physical Science. Richard Wistar. New York: Wiley; London: Chapman & Hall, 1953. 488 pp. Illus. \$4.75.

A Guide to the Moon. Patrick Moore. New York: Norton, 1953. 255 pp. Illus. \$3.95.

Histology. 2nd ed. Arthur Worth Ham. Philadelphia-London: Lippincott, 1953. 866 pp. Illus. + plates. \$10.00.

A Policy for Scientific and Professional Manpower. A statement by the National Manpower Council with facts and issues prepared by the research staff. New York: Columbia Univ. Press, 1953. 263 pp. Illus. \$4.50.

Weather Inference for Beginners. D. J. Holland. New York: Cambridge Univ. Press, 1953. 196 pp. Illus. \$6.00.

An Illustrated Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum, Vol. I: Tungidae and Pulicidae. G. H. E. Hopkins and Miriam Rothschild. London: British Museum (Natural History), 1953. 361 pp. Illus. + plates. 4£ 4s.

Chemistry of Carbon Compounds: Alicyclic Compounds, Vol. II, Pt. A. E. H. Rodd, Ed. Amsterdam-Houston: Elsevier, 1953. 487 pp. Illus. \$12.50.