ervations, Hunt's book can be recommended for this purpose. Obviously, the author has given much thought to the subject, and his book treats, from a unified viewpoint, the structure of water and the effect of ions thereon, the hydrolysis of metal ions, complex formation, and also the kinetics and mechanisms of substitution and electron transfer reactions. In addition, the thermodynamics of individual gaseous and hydrated ions is considered.

Unfortunately, although the author has attempted to adopt a critical attitude (and for this he is to be commended), the final result seems to present a rather pessimistic outlook. This is regrettable, for many interesting, unsolved problems are noted in this book. The arrangement of the material also seems somewhat erratic, especially in chapter 4. Polymerization of conjugate bases is treated in section 4-2, where it is noted that "very few data on the nature of the species or the reaction mechanisms are available." Section 4-6 treats polycondensed species again, and it is noted that data have been reported for some 23 polycations. Although the suggestion (p. 119) that sexavalent vanadium can be produced by using Tl(III) as an oxidizing agent is presumably a misprint, the book seems relatively free of typographical errors.

A student who has completed the undergraduate course in physical chemistry should find this book interesting and relatively easy reading. It could even be read profitably following the completion of an honors course in general chemistry. Hopefully, this reading will be done under the guidance of someone who will take a slightly more enthusiastic view of the study of metal ions in solution.

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Mathematics

Linear Differential Equations in the Real Domain. Kenneth S. Miller. Norton, New York, 1963. viii + 193 pp. Illus. $5.75.

This monograph contains everything of the theory of linear differential equations that one would expect it to contain and then some. A list of the nine chapter titles will give some idea of its scope: "Fundamental properties," "The adjoint operator," "The one-sided Green's function," "The algebra of differential operators," "Distribution theory," "The classical Green's function," "Sturm-Liouville theory," "The constant coefficient case," and "Infinite series solutions."

Some amplifying and some critical comments seem in order: The treatment is restricted to the case of linear differential operators with continuous coefficients (with one exception), and it is based on the concept of the Riemann integral (in chapters 5 and 7 where this is relevant). Existence and uniqueness of solutions are established in the customary manner in chapter 1. The case where the coefficients of the linear operator may be sectionally continuous is dealt with in chapter 5, but the application of the theory of distribution to this case appears to be of questionable merit. Although it is comforting to know that the function pieced together from solutions in the sub-intervals, where all coefficients are continuous, is a solution in the sense of distributions, and although this may enhance the prestige of this "solution," it does not really make it a better solution. Mathematicians lived with this and similar situations (Green's function) for years before the advent of the theory of distributions. As a genuine application of the theory of distributions, Dirac's "sifting function" is introduced, discussed, and used. The Pruefer method is utilized to establish the existence of infinitely many eigenvalues of the Sturm-Liouville boundary value problem. The treatment of the Sturm-Liouville problem is carried as far as is possible under the restriction to the Riemann integral—that is, the uniform convergence of a Fourier series of a continuous function with a sectionally continuous derivative and the convergence in the mean of the Fourier series of an integrable function are established. In chapter 8, Jordan's theorem on the canonical form of a constant square matrix is derived in preparation for the solution of the general case of a linear equation with constant coefficients. It is regrettable that the author did not introduce the matrix function exp(At), where A is a constant square matrix, and thus lend greater elegance to the solution.

There is great merit in divorcing the theory of linear differential equations from the general theory of differential equations and presenting it in a self-contained form. "Differential equators" and applied mathematicians in general will study this monograph with a great deal of interest, and certainly will derive profit from such a study, but the book does not seem particularly suitable for use as a textbook. The level of presentation fluctuates, instead of increasing monotonically in depth and degree of difficulty, and no problems or exercises are included. It is doubtful that students with only "Advanced Calculus through uniform convergence and a rudimentary acquaintance with matrix theory" will have the mathematical maturity required for studying the material as it is presented here without major frustrations. The typography is excellent.

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Note

Geology

Stratigraphy and Sedimentation (Freeman, San Francisco, ed. 2, 1963. 676 pp. Illus. $10.50), by W. C. Krumbein and L. L. Sloss, is an extensively reworked second edition of a well-known textbook by masters of the field. It treats the nomenclature, practices, and principles of stratigraphy, and of sedimentation as it applies to stratigraphy, with examples from the geologic record. It is not, however, a synoptic review or sequential sampling of the rock column; instead, the authors emphasize methods of stratigraphic analysis and data presentation. It is a candid, open-minded, and charitable book which occasionally seems about to bog down in terminology (for example, the treatment of facies and geosynclines) or even in downright nonsense (stratigraphic relationships and stratigraphic maps) but which rather consistently winds up with sensible recommendations. The exposition of the authors' predilections is counterbalanced with appreciative references to divergent views. Although not without inaccuracies (for example, precipitation of anhydrite) and typographical errors, this book is as nearly current and error-free as any I have examined critically. It is attractively printed, rewarding reading, and the drudgery involved in ploughing through the preliminary sections is compensated by an absorbing exposition of stratigraphic analysis in the last and longest of its 13 chapters. It contains an ex-