the most elevated ideal of any university in the world; and I believe it to be so much the better for the individual students. At any rate, I can only record my personal observation in two visits, after having endeavored at many universities to learn to appreciate the atmospheres of such places, that there is a sweetness and a strength there quite exceptional. I am far from regretting that the institution has been through tribulations, and has purged itself of every element alien to its idea. To-day the good seed has germinated, so that it can no longer be choked by lower motives if it now only receives what is necessary to its continuance. It is earnestly to be hoped that it may speedily find its Constantine or its Helena. If not, one can but pity the family of its founder, which will have missed so narrowly a crown of high distinction. In that case, one must believe that among the American people, so appreciative of broad ideas, there may be found some thousands of persons, who whether they are quite sure of the immeasurable superiority of the aims of Clark or not, will at any rate feel that one institution of this peculiar kind ought to exist in the land, and will come forward with annual subscriptions to enable it to tide over a prolongation of its period of trial, and to wait for the rescue that sooner or later, from some quarter or another, is sure to come. The volume before us affords indisputable proof of the extraordinary interest and respect which this small institution commands from every genuine man of science the whole world over. Mr. Clark has, at any rate, drawn the eyes of all Europe with expectation upon the city of Worcester. To allow the university, after this, to sink into nothingness would be to make a nasty smirch upon the scutcheon of America, that would long remain an offence to all our eyes.

C. S. Peirce.

*Analysis of White Paints.* A Collection of Notes on the Chemical Analysis of White and Tinted Paints. By George H. Ellis, B.Sc., Analytical Chemist and Assayer. Late Chemist Chicago, Burlington and Quincy Railway Company. The Technical Press, Evanston, Ill. Pp. 61 + vi.

This little book is a reprint of a series of papers originally published in the *Paint, Oil and Drug Review*, and their aim is to give a detailed description of the best methods of analysis of white and tinted paints. The book is intended not only as a reference book for experienced chemists, but also as a complete manual for the use of those who have little knowledge of chemistry. Thus a full description is given of the analysis of clay. It is a lamentable fact that so many manufacturers who are just coming to feel the need of a chemist in their works, do not recognize the desirability of having as chemist one who has at least a moderately thorough knowledge of chemistry. A book like the one before us will be of great value to the inexperienced paint-chemist, and will not come amiss to others. It will be of most value, however, to those chemists into whose hands there comes only occasionally a sample of paint for analysis. Chapter 1 is on preparing samples for analysis. Chapter 2 describes the different white pigments, and their qualitative and quantitative analysis, with specimen analyses by the author. The pigments considered are calcium carbonate, gypsum, china clay, silica, barium sulfate, magnesium carbonate, magnesium silicate, zinc oxid, and white lead. Chapter 3 presents schemes for the analysis of mixed paints, a problem often difficult owing to the presence of several different pigments as well as perhaps adulterants. The methods given are excellent and are described with clearness. The use of barium carbonate as a white pigment is referred to only in a brief note, where it is stated to be little used in American paints. I do not recall having seen any mention elsewhere of its use, but a highly praised paint came into my hands lately, which consisted of nearly equal parts barium carbonate and zinc oxid.

An appendix gives a brief scheme for the estimation of turpentine, benzin and water, a list of the principal pigments with their trade names, atomic weight table, and metric conversion table. The book has a full index. It is to be hoped that the author will supplement this book by a similar one on colored pigments and tints and their analysis.

Jas. Lewis Howe.

*The Refraction of the Eye, Including a Complete Treatise on Ophthalmometry.* A Clinical Text-

book for Students and Practitioners. By EDWARD DAVIS, A.M., M.D., Adjunct Professor of Diseases of the Eye in the New York Post-Graduate Medical School and Hospital, etc., with One Hundred and Nineteen Engravings, Ninety-seven of which are Original. 8vo. Pp. XII, 431.

This book as indicated in its sub-title is practically a treatise on Ophthalmometry. Replete with illustrative cases showing the most accurate and the most certain of the methods that are employed by the author for the examination and correction of errors of refraction, it serves as an excellent clinical guide for both the beginner and the experienced practitioner in this particular line of ophthalmic practice.

Well written, devoid of confusing diagrams, and most comprehensive in its every detail, it can be safely asserted that the book is by far the best exposition of the value and the use of the ophthalmometer that we have in our possession at the present time.

Both the author and the publisher are to be congratulated upon the production of a valuable work. C. A. O.

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*SCIENTIFIC JOURNALS AND ARTICLES.*

*The Journal of Physical Chemistry*, January. 'On the Inversion of the Hepta- and Hexa-hydrates of Zinc Sulphate in the Clark Cell,' by H. C. Barnes; 'The Melting Point of Chloral Hydrate,' by C. G. L. Wolf. The conclusion is drawn that but one modification of chloral hydrate exists in the fused substance and that the observed differences in melting point are due to dissociation. 'The Relation of the Taste of Acid Salts to their Degree of Dissociation,' by Louis Kahlenberg. The author finds that the sour taste of solutions of acid salts is much stronger than would be accounted for by the theory that acid taste is due to free hydrogen ions. 'The Electro-Chemical Equivalent of Carbon,' by H. C. Pease. The value for carbon when anode in concentrated sulfuric acid has been already determined; the author finds the value in fused potassium hydroxid (that is in a Jaques' cell), to be three, as in the acid. Carbon in both these conditions is thus quadrivalent. In the February number: 'On the Emission and Absorption of Water Vapor by Colloidal Matter,' by P. Duhem, an extended mathematical treatment of the subject. 'The Melting-point of Formyl-phenyl-acetic ether,' by C. G. L. Wolf. 'Freezing-point Curve for Water containing Hydrochloric Acid and Phenol,' by J. A. Emery and F. K. Cameron. The depression of the freezing-point of water by hydrochloric acid and phenol is in general an additive effect. 'Note on Bunsen's Ice Calorimeter,' by J. W. Mellor; preparation of an air free water and filling the calorimeter therewith.

IN *The Osprey* for March, Paul Bartsch continues his 'Birds of the Road' discussing those seen in February and March about Washington. Eugene S. Rolfe describes 'Some Trials of a Field Collector' and J. P. Norris discourses of the 'Eggs of the Sandhill Crane.' Under the caption 'Biographies of Ornithologists' Theodore Gill contributes a first installment of a welcome sketch of Swainson. The editor promises other biographies and in commenting upon the mercantile value of eggs makes some interesting remarks on the 'impulse to collect something' that seems inborn in man.

*The American Naturalist* for March opens with a paper by P. Calvin Mensch 'On the Life History of *Autolytus Cornutus* and Alternate Generation in Annelids' in which the author reaches the conclusion that in *Autolytus* we do not have a sexual generation alternating with an asexual, but a sexual dimorphism. Frank R. Lillie presents 'Some Notes on Regeneration and Regulation in Planarians,' and W. W. Norman has some 'Remarks on the San Marcos Salamander, *Typhlomolge orathbuni* Stejneger' which include some excellent figures of this little salamander. C. F. W. McClure writes 'On the Frequency of Abnormalities in Connection with the Postcaval Vein and its Tributaries in the Domestic Cat (*Felis domestica*)' concluding that breeding experiments might give us some clue to their causes. J. A. Allen reviews 'The North American Jumping Mice' and L. Murbach treats of 'Fresh-Water Aquaria.' The Synopses of North American Invertebrates are continued by Harriet Richardson who discusses 'The Isopoda.' The balance of the number is devoted to numerous reviews of current literature.