ing branches. The reviewer must confess his inability to understand clearly Professor Lockyer's differentiation between descending and ascending stars, although not wishing to question the probability that both branches exist.

In subsequent chapters the author interestingly discusses the bearing upon the dissociation hypothesis of the recent discoveries of series in the spectra of the elements, of pressure shifts of lines, of magnetic perturbations (Zeeman effects), and of the 'fractionation' evidence. He finds in them a quite satisfactory confirmation of his hypothesis, and displays great skill and command of the subject in marshaling to its support the data from such various sources.

As has been said of other volumes in this series, the illustrations do not adequately reproduce the author's original photographs, and could be greatly improved upon in a future edition.

EDWIN B. FROST.

*Outlines of Electrochemistry.* By HARRY C. JONES, Associate Professor of Physical Chemistry in the Johns Hopkins University. New York, The Electrical Review Publishing Co. Price, $1.50.

The author has not tried to give an exhaustive account of electrochemistry, for he prepared the seven chapters, which cover about one hundred pages, for a technical journal, whose readers are for the most part men busy in every field of applied engineering science; consequently he wisely selected those theoretical topics which would appeal most strongly to this particular class of students. The book, however, will prove instructive and helpful to all who wish to get a clear and definite knowledge of the subjects it presents. The writer has read it with profit, and feels sure that he does not err in recommending it. One might, however, well ask whether 'the whole subject of the electrolytic separation of the metals was opened up' (p. 44) through the study of the decomposition values of the ions by LeBlanc, Freudenberg and others in Ostwald's laboratory, when it is recalled that all but three or four of the separations recorded by these chemists had been made long before by others? Or, if 'the decomposition values of the ions' is the vital point, should we omit mention of the work of Kiliani, who first carried out metal separations by attention to the differences in electromotive force? Perhaps these may be regarded as minor matters, but the historical development of the subject calls for their presence.

EDGAR F. SMITH.

*Enzymes and Their Application.* By Dr. JEAN EFFRONT. Vol. I., The Enzymes of the Carbohydrates. Translated by SAMUEL C. PRESCOTT. New York, John Wiley & Sons; London, Chapman & Hall, Limited. 1902. 8vo. Pp. 322.

This is a very excellent work and is a valuable addition to the literature on enzymes and their application. The book is designed to meet the wants of not only scientific investigators, but also of those interested in the industrial application of these substances, and will be appreciated by both classes. The author has carried out his purpose in a clear, concise manner. From the standpoint of theoretical consideration he is careful and conservative, and his treatment of the technical application of enzymes to commercial practices is unusually full and clear for a work of this kind. The book is more than a compilation, inasmuch as the author has, as stated in the preface and borne out by internal evidence, confirmed in his laboratory most of the facts presented. The second volume which is now in course of preparation, will take up the proteolytic enzymes and the toxins, and its appearance will be looked for with interest. Professor Prescott is to be congratulated in presenting a translation that in no way detracts from the original. The printing is well done and the paper and binding good.

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*Animals of the Past.* By FREDERIC A. LUCAS. New York, McClure, Phillips & Co. 1901.

One who has had much to do with a public museum of extinct vertebrates is pretty sure of the queries that the ordinary sight-seer will