various problems of locomotive balancing is very interesting, appearing to thoroughly fulfil the conditions.

Prof. Dalby has produced a book useful alike to the mechanical engineer and the student. N. J. L.

Guide to Italy. Pp. civ+352+4. Price 10*s.* net.
Guide to the Western Mediterranean. Pp. xxvi+238. (London: Macmillan and Co., Ltd., 1901.) Price 9*s.* net.

IN adding one more series of guide-books to those already in existence, the publishers have struck out in a somewhat new line by making conciseness their most important feature. The overworked professional man, who has little time to read up lengthy descriptions, will here find, condensed into a smaller compass than has previously been done, the most important points to be looked out for on his proposed journey. The authors of these books have been remarkably successful in condensing so large an amount of information into them.

The "Western Mediterranean" is divided into sections dealing respectively with Lisbon, Andalusia, Morocco, Algeria, Malta, Naples, the Riviera, the Balearics, and other ports and districts of interest. In "Italy" a different and novel order has been adopted. The book opens with articles on Italian life, art and architecture by "O. B." and other well-known writers. Next comes a description of routes *only*, without lengthy descriptions of towns; lastly, the towns of Italy are described in alphabetical order. The advantages of this method may not, perhaps, impress the reader at a first glance, but as soon as he is accustomed to the new order of things he will become converted to the belief that the system effects a considerable saving of time and trouble and is most convenient. Hotels are enumerated in a list by themselves; in a future edition the authors might with advantage make an effort to give fuller information under this head, especially in reference to tariffs. There are also a few minor points on which opinions may differ. Most Italians know an "Inglese" fast enough and do not take every foreigner for a Frenchman (p. xii.); in the vocabulary (p. xvi.), "entrate" is a more familiar equivalent for "come in" than "avanti"; and if the authors of "Italy" are *really* right as to the situation of Virgil's tomb (p. 147), Neapolitan guides and cab-drivers have been wrong for many years. The maps are excellent.

Outlines of Electrochemistry. By H. C. Jones. Pp. vi + 106. (New York: The *Electrical Review* Publishing Co., 1901.)

THIS is an exceedingly interesting book. The title is, perhaps, a little misleading. To our mind it would be better to call it "Physical Foundations of Electrochemistry," or some similar title. There is an inclination among writers of electrochemistry to treat the subject entirely from the physical standpoint, hence many books on the subject lack breadth of treatment. The present book, as the author explains in the preface, is a republication of papers which originally appeared in the *Electrical Review* (New York).

Chapter i. deals with osmotic pressure in a very clear and lucid manner. Chapter iv., on the "newer theories of electrolysis," is very ably written, and here Mr. Jones, in explaining the theory of the electrolysis of water containing acids, alkalis or salts in solution, adopts the theory of Le Blanc, which looks upon the electrolysis of water as being a *primary* and not a secondary reaction. Most writers explain the electrolysis of water as being of a secondary nature, due to the presence of the acid or base in solution. According to Le Blanc, it is entirely a question of the decomposition value of the water, and of the salts, acids or bases in solution. In an aqueous solution of an acid, for example, it is simply a question whether the ions of the acid or those of the water will the more readily give up their electrical charges, it being assumed that pure water is slightly ionised.

Chapter vi., which is divided into two parts, deals with the "conductivity of solutions," and a very interesting lecture experiment, due to Noyes and Blanchard, for showing the different conducting powers of various electrolytes, is described. A good deal of attention is devoted to the dissociating power of different solvents, especial stress being laid upon the dissociation of electrolytes in alcohol. Mr. Jones does not, however, refer to the fact that certain inorganic salts are considerably ionised when dissolved in pyridine. In this connection it is interesting to notice that quite recently Kahlenburg has succeeded in depositing lithium in the metallic form, from the solution of its chloride in pyridine.

Mr. Jones is to be congratulated upon having presented us with a very readable and scientifically written account of the foundations of electrochemistry. We notice that the author is engaged upon a work on physical chemistry, the production of which we await with interest.

F. M. P.

Outlines of Botany. By R. G. Leavitt. Pp. 272. (New York: American Book Company.)

THIS book has been compiled for use in high schools and is based on Asa Gray's "Lessons in Botany," an abridgment of his well-known standard work on plant morphology. The author points out that he is not in agreement with the strong ecological bias developed in so many recent American text-books, and that he has endeavoured rather to develop the study of structure and form, and also to emphasise the physiological factors which control plant life. This view will be endorsed by many botanists.

The method adopted is to suggest a series of practical studies, each being followed by an elaborated theoretical discussion. The principle involved of setting the student to learn by direct observation depends firstly on the student and secondly on appropriate treatment of the subject. For advanced students such a course might be admirable. But for students at high schools there is neither the requisite time nor training required for such investigations; for these introductory lectures are absolutely necessary. Then again, as regards his treatment of the subject, one must entirely differ from the author. The first chapter, dealing with seeds and seedlings, will illustrate the objections to be raised. Beginning with the gross features of the castor bean, lupin and maize, the author next proposes a series of physiological exercises—*e.g.* the nature and location of food reserves; absorption of oxygen, production of carbon dioxide and heat evolved in germination; geotropism and development of chlorophyll. He then returns to morphology to give a brief summary of special morphological features. It will be observed that on the one hand the training to be gained by a well-balanced and varied series of anatomical exercises seems to have been overlooked, for the castor bean does not offer a favourable object for a first investigation, and at least eight or ten seeds should be examined. On the other hand, the physiology is too varied. What teacher with practical experience does not know the many difficulties and pitfalls which attend even simple experiments? What success may be expected for a young and inexperienced investigator who attempts these broadly-extending exercises, with the help of descriptions which are often extremely vague? Throughout the chapters dealing with the flowering plant there is the same paucity of development and want of judgment in choosing anatomical exercises. The book contains a cryptogamic course which is somewhat superficial, and closes with two unsatisfactory chapters on anatomy and physiology.