ever, forgets to note one feature of German taxonomic methods altogether too common in recent monographic work in his own country, and one that more than once has led him into minor errors that could easily have been avoided. In preparing his monograph, Giesenhagen had access to a loan for a short time of the herbarium materials from Berlin, which is unquestionably the finest Continental collection, and also had access to the types of Blume's Javan ferns from the Museum at Leyden, but the richest collection of all in this and every other genus of ferns, namely, that at Kew, England, the author never consulted. In fact, German monographers rarely consult this magnificent collection, and as a consequence of this neglect, go on producing monographs which contain either avoidable errors or lamentable omissions. To cite an instance from the present case, the English botanists had confused a common Indian fern with one of Blume's Javan species, of course without having seen Blume's plant, for English botanists do not always take the trouble to gather evidence if it involves crossing the English Channel to get it. Our present author, after an examination of Blume's type finds the Indian plant something very different, as might have been expected, and in spite of the fact that the Indian plant already had been named independently by other English botanists commencing with Wallich, proceeds at once to name it '*Niphobolus Mannii* n. sp.' This is surely an economical method of procedure—in fact saves the time and money necessary to visit Kew—but as a question of ethics or scientific accuracy it is not to be commended in a formal monograph. Wallich's name must hold for this plant unless there should prove to be an earlier one.

In short the principal criticisms that can be offered to the work in hand are those that bear on the lack of accuracy in citation and nomenclature and yet these imperfections mar an otherwise admirable volume. In citing specimens examined the author often uses an entire page and sometimes two pages in needlessly quoting the entire label from the herbarium sheet—data important in their proper place, but in even the more extended series here given capable of being condensed and better classified into ten lines in so far as they give information respecting geographic distribution. On the other hand *icones* are rarely cited and in some cases the reader is in doubt both as to the original author of the species described and its type locality. Last of all the name *Niphobolus* is itself untenable. The author, working under the old conception that a genus is a description or a definition instead of a group of related species, passes over Desvaux's genus *Cyclophorus* (1811) because neither in his generic description nor in those of its six species which the present author admits 'alle echte *Niphoboli* sint' does Desvaux mention the peculiar vestiture which characterizes the members as now understood. Because of this and because Kaulfuss in 1824 had substituted *Niphobolus* for *Cyclophorus,* since the latter name had been used for a genus of shells, our present author unfortunately uses the latter name, which in the rational and progressive system now in use in biological nomenclature cannot stand. It is unfortunate that so complete a monograph should be lacking in the minor essentials of modern scientific accuracy.

Lucien M. Underwood.

The Practical Methods of Organic Chemistry. By Ludwig Gattermann, Ph.D., Professor in the University of Freiburg. With numerous illustrations. Translated by William B. Schober, Ph.D., Instructor in Organic Chemistry in Lehigh University. Authorized translation. The second American from the fourth German edition. New York, The Macmillan Company. 1901. Pp. 359.

Gattermann's book is favorably known in organic laboratories. It consists of a brief general part dealing with analytical operations and laboratory methods, and a special part of organic preparations. To quote, 'To each preparation are added general observations which relate to the character and general significance of the reaction carried out in practice.' This feature is a very great help to the student.

This edition includes a number of new prep-

arations. It has been well translated by Dr. Schober, and is clearly illustrated.

E. RENOUF.

Laboratory Exercises in General Chemistry. Compiled from various sources by G. W. SHAW, A.M., formerly Professor of Chemistry at Oregon State Agricultural College. For use in connection with Storer and Lindsay's 'Manual of Chemistry.' New York, American Book Company. Pp. 63.

This book is better than most of its class. A generally valid objection to the use of laboratory books instead of the text-book is that they enable a student to perform an experiment without thought of the principle which it illustrates. Such objection cannot be made to this book, for each exercise contains many questions requiring verbal answer to the instructor or written answer in the laboratory note-book.

E. RENOUF.

The Elements of Qualitative Analysis. By WM. A. NOYES, Ph.D., Professor of Chemistry in the Rose Polytechnic Institute. Fifth edition, revised. New York, Henry Holt & Company. 1901. Pp. 101.

In this new edition of his excellent and well-known manual, Professor Noyes introduces and expands the method of Abegg and Herz for the systematic detection of acids. He divides the acids into eight groups, using as reagent for group 1 concentrated sulphuric acid; for groups 2, 3 and 4 calcium chloride, barium chloride and zinc chloride respectively in neutral solution; for group 5, color reaction with ferric chloride; group 6, silver nitrate; group 7 contains the acids whose calcium, barium, zinc and silver salts are soluble; and group 8, the commoner organic acids which carbonize on heating. This method seems simple and little open to error.

E. RENOUF.

SOCIETIES AND ACADEMIES.

THE CHICAGO SECTION OF THE AMERICAN MATHEMATICAL SOCIETY.

THE eleventh regular semi-annual meeting of the Section was held at the University of Chicago, on Saturday, March 29, the first session opening at 10 o'clock A.M. At the morning session Professor Townsend, of the University of Illinois, and at the afternoon session Professor Moore, President of the Society, occupied the chair. The following papers were read:

Morning Session.

Nachtrag zum Artikel: 'Zur Erklärung der Bogenlänge,' u. s. w.: Professor O. STOLTZ, Innsbruck, Austria.

'The Mutual Independence of Hilbert's Axioms within the Various Groups': Mr. ARTHUR T. BELL, University of Illinois.

'On the Superosculation of Surfaces': Professor H. MASCHKE, University of Chicago.

'A Certain Conic connected with the Isotomic Relation': Professor LAENAS G. WELD, University of Iowa.

'Concerning the Second Variation in the Isoperimetric Problem': Professor O. BOLZA, University of Chicago.

'Concerning the Isoperimetric Problem on a Given Surface': Professor BOLZA.

Afternoon Session.

'Some Remarkable Cases of Libration among the Small Planets of the Hilda Type': Professor KURT LAVES, University of Chicago.

'On the Interchange of the Order of Differentiation': Professor E. J. TOWNSEND, University of Illinois.

'On the Group Defined for Any Given Field by the Multiplication Table of Any Given Finite Group': Professor L. E. DICKSON, University of Chicago.

'Theorems on the Residues of Multinomial Coefficients with respect to a Prime Modulus': Professor DICKSON.

The committee appointed at the last meeting of the Section to consider and report a scheme of equivalent requirements for the Master's degree, for candidates making mathematics their major subject, presented a preliminary report which was discussed and ordered to be manifolded for distribution among the members of the Society. The report is in the hands of the secretary of the Section and a copy will be sent to any members applying for it.

THOMAS F. HOLGATE,
Secretary for the Section.