

include its status in England at the period of the production of the play and narratives showing its adaptability to swindling credulous persons at all periods. The editor then points out the originality of Jonson and his slight indebtedness to previous writers; he also draws a picture of Simon Forman, a notorious London quack flourishing in Jonson's day, who probably furnished the author one of the characters of the play (Subtle).

The editor gives many instances of the swindling operations in recent times by pretended alchemists, especially dwelling on the tricks of Morrell and Harris in New York, of Pinter in London, and of the Rev. Mr. Jernegan, of Connecticut (in connection with the fraudulent extraction of gold from sea water), and he gives references to the daily press for particulars. Elsewhere he names the three principal branches of astrology and refers to some of the modern aspects of this pseudo science. In a note on Jonson 'taking in of shaddows with a glass' he writes of catoptiomancy, and refers to the notorious Kelley who acted as 'skryer' for Dr. Dee, in Queen Elizabeth's day.

Following the text are one hundred pages of notes, partly taken from preceding editions, notably Gifford and Whalley; a bibliography of works consulted, in which one misses the names of Hermann Kopp ('Geschichte der Chemie,' 4 vols., 1843, 'Die Alchemie in älterer und neuerer Zeit,' 2 vols., 1886), of William Johnson ('Lexicon chymicum,' London, 1652), and the 'Chymicall Dictionary,' bound with Michael Sandivogius' 'New Light of Alchemie' (London, 1650), but perhaps these were not accessible to Dr. Hathaway.

There is also a glossary of forty columns, and finally an index. Each section is marked by thorough work and painstaking study on the part of the editor; the glossary in particular may be of much assistance in explaining archaic and obsolete terms in the alchemical writings of other authors than Jonson.

The notes refer to passages in a variety of languages, show judicious selection and a wide acquaintance with literature. The deep study of alchemical jargon has familiarized

the editor with incomprehensible gibberish to such an extent that he himself is not always perfectly clear. (See note on page 288, last three lines.) And he is sometimes tempted to substitute conjectures for more definite information, especially in discussing the signification of impossible words.

Dr. Hathaway shows the relations which Jonson's comedy bears to John Lyly's 'Gallathea,' printed in 1592, to Gower's and Chaucer's well-known poems, to Lydgate's 'Secrees of old Philisoffers' and to the principal metrical treatises on alchemy preserved by Elias Ashmole in his 'Theatrum Chemicum Britannicum' (London, 1652), from which he gives many citations.

The editor has been very successful in demonstrating that 'Nothing in Jonson is done at random.' The whole work is creditable to the editor, and for its typographical excellence to the publisher.

HENRY CARRINGTON BOLTON.

BLATCHLEY'S ORTHOPTERA OF INDIANA.

IN the Twenty-seventh Annual Report of the Department of Geology and Natural Resources of Indiana, 1902, Mr. W. S. Blatchley, State Geologist, has devoted over 350 pages to the Orthoptera of his state, and under this modest title has given us one of the best pieces of entomological work that has come to us during the present year. Not only are all of the species known to the author to occur in the state fully described, some of them for the first time, but he has given in connection therewith every scrap of information relating to them that he has been able to obtain, either by observation, correspondence or found recorded in entomological literature. The list includes 148 species, many of which are figured, the illustrations consisting of 121 figures, one colored and two uncolored plates, which with a full bibliography and synonymy, keys to families, genera and species found in Indiana, sections relating to the external anatomy of the order, natural enemies, life zones of Indiana, a glossary of terms used in the text, together with a full index, gives the work a

finish that is seldom found in connection with such papers. The author has himself studied the orthoptera of his state in the field, during the last twenty years, and many of the statements given relative to habits have come first hand fresh from the observer. The student of geographical distribution will find much of interest, while even those not especially interested in the technical descriptions will certainly not fail to appreciate the copious notes on habits, abundance, etc., etc., but it will be of the greatest value to those who make a specialty of the orthoptera.

F. M. WEBSTER.

URBANA, ILLINOIS,
September 30, 1903.

SCIENTIFIC JOURNALS AND ARTICLES.

THE closing (October) number of volume 4 of the *Transactions of the American Mathematical Society* contains the following papers: 'On the subgroups of order a power of p in the quaternary abelian group in the Galois field of order p^n ,' by L. E. Dickson; 'On the order of linear homogeneous groups,' by H. F. Blichfeldt; 'Non-abelian groups in which every subgroup is abelian,' by G. A. Miller and H. C. Moreno; 'On nilpotent algebras,' by J. B. Shaw; 'On solutions of differential equations which possess an oscillation theorem,' by Helen A. Merrill; 'On the reducibility of linear groups,' by L. E. Dickson; 'Semireducible hypercomplex number systems,' by S. Epstein; 'A symbolic treatment of the theory of invariants of quadratic differential quantities of n variables,' by H. Maschke; 'Congruences of curves,' by L. P. Eisenhart; 'Similar conics through three points,' by T. J. I'a Bromwich.

THE opening (October) number of volume 10 of the *Bulletin* of the Society contains the following papers: 'Poincaré's Review of Hilbert's Foundations of Geometry,' translated by E. V. Huntington; 'On linear differential congruences,' by S. Epstein; 'Fields whose elements are linear differential expressions,' by L. E. Dickson; 'On directrix curves of quintic scrolls,' by C. H. Sisam; 'Josiah Willard Gibbs, Ph.D., LL.D., a short sketch

and appreciation of his work in pure mathematics,' by P. F. Smith; Notes; New Publications.

THE November number of the *Bulletin* contains: 'Report of the tenth summer meeting of the American Mathematical Society,' by F. N. Cole; 'Report of the committee of the American Mathematical Society on definitions of college entrance requirements'; 'On the congruence $x_{\phi(P)} \equiv 1, \text{ mod. } P^n$,' by J. Westlund; Review of Mach's *Mechanics*, by E. B. Wilson; Review of Forsyth's *Differential Equations*, by E. J. Wilczynski; Notes; New Publications.

The Journal of the Franklin Institute prints, in its October number, the paper of Mr. Thomas M. Gardner, instructor in Sibley College, on 'The Graphics of Carbon-Disulphide, with Formulas and Vapor-Table.'

It is a practically important contribution to the literature of the subject, as it provides the essential entropy-values of a substance which is thought by some authorities to be likely to have importance as the working fluid of a secondary heat-motor, as in the 'waste-heat engines.'

A plate is given exhibiting the properties of the substance having importance in the thermodynamic operations, and another giving the temperature-entropy diagram with MacFarlane Gray's constant-volume lines. Several other plates present the constant-area lines, $pv = C$, the constant-quality lines, $x = C$, the constant-entropy lines, $\phi = C$; and the general temperature-entropy diagram, after Boulvin, completes the series.

A new and extensive table of the properties of the saturated vapor, in the form of the standard steam-tables, provides data hitherto uncomputed and in forms suitable to the thermodynamic discussion of heat-engines employing this substance. The values of n , also, in $pv^n = C$ are determined and the curve is given for adiabatic expansion of qualities ranging from $x = 0.10$ to $x = 1$.

It is shown that, with hyperbolic expansion, the 'quality' of wet fluid improves, the proportion of moisture decreasing; with superheated vapor, this expansion becomes isother-