of the atomic weights of the elements, their grouping and classification, suggest that elements merely mark stable points in a process of change; but the investigations are still in a nebulous condition. The phenomena of Röntgen rays and Becquerel rays enter into this conception. After all, the modern chemical problem bears only a superficial resemblance to the alchemical quest for the 'One Thing.'

'The Story of Alchemy' is not a history of the pseudo-science, but rather a philosophical examination of its true significance and aims, told in an attractive, interesting manner by a competent scholar. The title of the book, which is necessary as one of a series, is misleading; the work makes no attempt to depict the sociological influence of alchemy by detailing its fortunes and misfortunes, but this does not detract from its value to students and the general reader.

It is interesting to note that 'sulfur' is spelled throughout in the manner recommended by the American Association for the Advancement of Science in 1891.

HENRY CARRINGTON BOLTON.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Botanical Gazette* for January contains the twenty-fourth installment of 'Undescribed Plants from Guatemala and other Central American Republics,' by John Donnell Smith, Thirteen new species are described by the author and the specialists to whom particular groups have been referred. *Zamia Tuerckheimii* is illustrated upon a double lithograph plate.—Professor J. C. Arthur, of Purdue University, reports upon the third series of 'Cultures of Uredineæ,' which were made during the season of 1902. One hundred and twenty-three collections of material were employed, and 327 cultures attempted, representing 43 species of rusts and using 102 species of hosts. In no case was success in connecting the generations of these puzzling plants attained where definite clues derived from field observation were lacking. Fourteen species tried by the guessing method were involved in these failures. Twelve that had been studied with success before were again successfully grown and the confirmatory results are recorded. Seven species of rusts were successfully cultivated and the connection between the æcidial and teleutosporic generations established. Three new names are proposed.—Arthur L. Dean, of Yale University, gives an account of his 'Experimental Studies on Inulase.' This enzyme, found in *Aspergillus* and *Penicillium*, does not diffuse into the culture medium. It acts most vigorously at a temperature of 55° C. and in a medium containing .0001 normal H_2SO_4; .01 normal destroying it.—Dr. B. E. Livingston discusses 'The Distribution of the Upland Plant Societies of Kent County, Michigan.' The climatology and geology of the county are described and the vegetation of the uplands classified into five societies, whose distribution is shown upon a map of the county. A list of the plants constituting these societies is given and the relative frequency of the different species is indicated. The writer holds that the controlling soil factor in distribution is one of drainage. While the present observations seem to justify the hypothesis that physiography determines vegetation, the writer thinks that the main question with which we have to deal lies still untouched, namely, 'What is it in the nature of the soil which determines the distribution of plant societies?' He offers the hypothesis that 'The decisive factor in plant distribution on a small upland area is in most cases the moisture-retaining property of the soil.' Of course the historic factor must also be taken into consideration.—Professor Albert Schneider, of Northwestern University, contributes a second paper on the 'Biology of *Rhizobia*' in which he corrects a previous statement that *Rhizobium mutabile* is absolutely non-motile, showing that while this is true of the species in most neutral media, espcially in solid ones, it is decidedly motile in acid media, the growths being grayish to light gray and brownish-gray in color, and the motile forms much smaller and more uniform in size than the non-motile ones.—The number closes with twenty-two pages of notices of current literature and news items.

C. R. B.

The American Naturalist for January contains an article by Hubert L. Clark, on 'The Water Snakes of Southern Michigan,' which contains a detailed study of the species found there and concludes that *Natrix erythrogaster* is a well-defined species of recent production, probably derived from some form of *N. fasciata,* but not *sipedon.* Edward W. Berry describes some 'New or Hitherto Unknown Ephemerid Nymphs of the Eastern United States,' and R. W. Shufeldt has a paper 'On the Classification of Certain Groups of Birds.' This deals with the Saururæ, the struthious birds, and the Odontoholcæ, but the writer does not seem to have consulted Pycraft's important memoir on the Palæognathæ. Charles C. Willoughby discusses 'Hats from the Nootka Sound Region,' and the number is completed by a number of important reviews.

The *National Geographic Magazine* (Washington) for February publishes as a supplement the North Atlantic Pilot Chart for February. The chart, which is 2 by 4 feet and printed in four colors, illustrates an article by Commander Southerland on the work of the Naval Hydrographic Office. The contents of the magazine for the month also include an illustrated article by William E. Curtis on Macedonia, Bulgaria and Servia, an article by the U. S. Weather Bureau director at Salt Lake City, L. H. Murdock, discussing the fall in the level of Great Salt Lake, an argument by Edwin S. Balch in favor of American Claims in the Antarctic, and miscellaneous geographic notes.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

The 365th meeting was held Saturday, January 24.

A. D. Hopkins presented a paper on the 'Work of Forest Insects,' fully illustrated with lantern slides, showing two phases of the subject. The first set of pictures illustrated the economic phase, and was suggestive of the destructive character of some of the work, and its relation to public interests.

The first of the principal insects mentioned in this connection was the destructive pine bark beetle (*Dendroctonus frontalis* Zim.), which in 1890 to 1892 devastated the pine and spruce forests of the Virginias, causing the death of many millions of forest and shade trees, over an area of some 75,000 square miles. Evidence has been recently found in Texas that the species committed similar depredations in the long-leaf pine region of eastern Texas between 1882 and 1885. It was evident to the speaker that a number of serious devastations which have occurred in different sections of Southern pine forests within the past century were due to this species.

The pine-destroying beetle of the Black Hills (*Dendroctonus ponderosæ* Hopk.) was also mentioned as one of the most destructive enemies of Western forests. It is now at work in the Black Hills forest reserve, and has already killed some 600,000,000 feet of timber. It is threatening a like fate to the remainder of the timber of the reserve; which involves the destruction not only of the timber, but of the great mining and other industries which are dependent on the timber supply.

The slides also illustrated the work of other species of *Dendroctonus* which had recently been collected in the Priest River forest reserve, Idaho, in western Washington, Monterey, Calif., and Williams, Ariz., where much timber is being killed by different species working in those localities. The destructive work of several species of *Agrilus,* which kill poplars, birches, oaks and chestnuts in different parts of the country, and that of the chestnut timber worm (*Lymexylon sericeum* Harr.), were shown, with the statement that the latter was exceedingly destructive to the chestnut timber of the Appalachian region.

The other set of pictures, illustrating the pure science phase, suggested the importance of biological material as a guide to the determination of true specific characters and characteristics of habit, of the natural relations between primary and minor divisions of bark and wood inhabiting species, and of the relation of species and genera of insects to the species and genera of plants on which they live. It also suggested the importance of