economic minerals of Canada from all the provinces, and tables of their value and of the amount produced and exported or consumed at home.

The volume contains a very complete index, which adds greatly to its value. H. M. Ami.

North American Slime Moulds. By T. H. MacBride. New York, Macmillan & Co.

The appearance of this book must be gratifying to all American students of the slime moulds. It is gratifying also that it comes from the pen of one who has long been identified as an ardent student of these lowly organisms, and whose former contributions to the literature of the subject have shown signs of a conscientious student. It follows closely after the appearance of two monographs covering the species of a much wider geographical area and including the American forms; the one by Mr. George Massee of the Kew Herbarium, London, Eng., and the other by Mr. Arthur Lister, of the British Museum, London, Eng. Nevertheless, it will be found convenient for American students because it is limited to American species, and especially because the author has had an opportunity of comparing a larger number of specimens representing the American species, than perhaps were accessible to the monographers mentioned above.

Each of these three authors arrives at a different conclusion after the usual course of reasoning in the selection of the name for the entire group. Massee uses the name *Myxogastres* first applied by Fries in 1829. Lister employs the name *Mycetozoa*, given by de Bary, in 1858, which included the *Acrasieæ* of recent discovery and the *Myxogastres* of Fries. MacBride choses the name *Myxomycetes*, substituted by Link in 1831 for Fries *Myxogastres*, but emended by deBary to include the exosporous species, the endosporous species only having been treated of by Fries and Link. The *Myxomycetes* of deBary thus formed a subdivision of his *Mycetozoa*. The author then says (p. 13), "Myxomycetes (Link) de Bary must remain the undisputed title for all true slime moulds, endosporous and exosporous alike."

In the introduction the author briefly describes the habits and morphology of the organisms. It is evident from his discussion on page 9 et. seq., that he considers them to be plants. But he very sensibly recognizes the difficulties here presented by a group of organisms, whose vegetable characteristics on the one hand ally them to the amœboid animals, and on the other hand give rise to no higher group. He says "it is purely a matter of indifference whether we say plant or animal, for at the only point where there is connection there is no distinction." There are given directions for the collection and care of material, and also is given a good bibliography.

In the taxonomic part of the book, the *Myxomycetes* (Link) de Bary are regarded as a class which is divided into three sub-classes. The first sub-class is the *Phytomyxineae* Schroeter, with one species, *Plasmodiophora brassicæ* which produces the common club foot of cabbage, turnips and other cruciferous plants. The second sub-class, the *Exosporeæ* Rostafinsk, includes two species, the well known *Ceratiomyxa fruticulosa* (*Ceratium hydnoides*) and *C. porioides*, which may be only a variety, or form, of the first named, as suggested from material collected by the writer at Ithaca, and indeed Lister considers it a variety only (Mycetozoa, p. 26). The third sub-class the *Myxogastres* (Fries) MacBride, represents the *Myxomycetes* properly speaking, and it is here that the large number of genera and species are to be found. 'Keys' are given first to the orders of which five are recognized. Then under each order are given keys to the genera and species, with synonymy and diagnoses, which latter are further made lucid by copious notes in most cases. The distribution of each species as at present known to the author is also given.

In his treatment of the nomenclature the author has not been led into many very painful upheavals of antiquated names, though in several cases the species appear under unfamiliar names, the most notable being *Mucilago spongiosa* for *Spumaria alba*. Forty-four genera are treated and over two hundred species. These are illustrated by eighteen excellent plates. The work is published in the attractive way so characteristic of many of Macmillan's books.

George F. Atkinson.

Cornell University.