caused by the convectional currents in the agitated air mass of a thunderstorm. Comparatively little attention has thus far been paid to these short wave-length pressure oscillations, and Mr. Palmer has extended our knowledge of them by his examination of the Blue Hill records.

To have built and equipped, and to have maintained for more than 25 years, an observatory such as that on Blue Hill, which has done so much real pioneer work of the highest importance—surely this is a splendid contribution to science. To Professor A. Lawrence Rotch American meteorology, indeed meteorology everywhere, owes a debt which is year by year becoming greater.

R. DeC. Ward
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Rock Minerals: Their Chemical and Physical Characters and their Determination in Thin Section. By Joseph P. Iddings. Second edition, revised and enlarged. New York, John Wiley & Sons; London, Chapman & Hall, Limited. 1911. Pp. 617. Cloth. $5.00.

That a second edition of Professor Iddings's work has so soon been called for speaks well for the growth of American petrography, while the constant tendency manifested toward a greater degree of refinement in methods speaks well for its future growth.

The present edition, so far as its plan is concerned, is practically identical with the first, the important difference being the addition of such new material as brings the work down to date. Upwards of 80 minerals are described not included in the first edition; "chiefly those occurring in pegmatites and segregated ores representing extremes of magmatic differentiation." Fifty-two figures are added in the text, and 67 pages of descriptive matter: a birefringence diagram is also added. Incidental to this diagram and the colored plate indicating the interference colors and birefringence of the various minerals it may well be asked if students entering upon the study of micro-petrography are ever tested for color blindness. It has often seemed to the reviewer that sundry imperfect (rather than erroneous) descriptions which have been published might be due to an inability on the part of the worker to distinguish the various colors, or at least to distinguish between their relative values.

The book, as in the previous edition, is divided into two parts, Part First, Chapter 1, being given up to a description of chemical principles and characters, and is identical with the edition of 1906. Chapter 2, dealing with the physical principles and characters, is also identical with the 1906 edition, and leaves nothing to be desired in its method of presentation. Chapter 3, on the optical properties, deals with what is perhaps the most difficult branch of the science for the student to master, and is naturally the most difficult to handle in a manner satisfactory to both worker and student. It demands the knowledge and the experience of the advanced worker and yet the teaching capacity of one who has not so far outgrown his student days as to be unable to appreciate the necessity of carefully detailed presentation. With the advanced student this chapter leaves little or nothing to be desired. As, with the exception of a page and a half on pleochroic halos, it is identical with the previous edition, nothing more need be said here regarding it.

Part 2 deals with the description of the various rock minerals taken up in the order of their chemical composition; alteration; crystallographic characters; optical properties; modes of occurrence; resemblances to other minerals, and laboratory production. It is to this portion of the book that the worker, however advanced, must have constant reference.

Professor Iddings is recognized the world over as an authority in all matters relating to petrography, and words commendatory are superfluous. The work is simply indispensable to all petrographers. The method of presentation is, however, naturally open to discussion. To the reviewer it would seem that for actual use and for purposes of ready reference more discrimination might well have been shown between minerals prominent as rock constituents and those rare: between

tests that may be applied to determine in the easiest and quickest way what a mineral actually is, and others which, though they may be of equal scientific interest, are unimportant or inapplicable. In its detail the work is monographic and if this is what the author had in mind there is naturally nothing more to be said. Criticisms along these lines are often unfair, being based upon what a reviewer thinks he has a right to expect rather than what the author intends. Whatever may be one's views on these subjects there is always the comforting reflection that the information given is as accurate as the stage of the science will permit.

The make-up of the book is the same as that of the first edition. The paper and binding are good, the type clear, and the illustrations excellent. Petrographers are to be congratulated that so able an authority has found time to put the knowledge gained by many years of study and experience into a form available for students the world over.

GEO. P. MERRILL

The British Nudibranchiate Mollusca. By ALDER and HANCOCK; Supplement by SIR CHARLES ELIOT. London, Ray Society (Dulau & Co.) 1910. 4to. Pp. 198. 8 plates.

Of works on this attractive group of mollusca, that of Alder and Hancock is *par excellence,* the classic, not only on account of its exquisitely beautiful and accurate plates, but from its monographic character and correct anatomical details. Among the posthumous papers left by the two authors were notes and drawings preliminary to a supplement to the original work.

To forty-two of these drawings Sir Charles Eliot has added twenty-three new ones and supplied a text, the whole being sent out by the Ray Society with suggestions for the completion of imperfect copies of the old work possessed by individuals interested in the subject. The form is that of the original monograph and the quality of the plates fully equal to that of the first issue.

But the author has not been satisfied with the preparation of a merely descriptive and corrective supplement. He has prefixed to the purely systematic portion chapters on variation and distribution, bionomics, embryology and larval stages, general classification of the group and an exhaustive discussion of the affinities and relationships of the animals concerned. These chapters not merely illuminate the subject but are from a merely literary standpoint presented in a form so clear and interesting as to be readable with pleasure by one having only a general knowledge of the mollusca. Such contributions to zoology are likely to invite study of the animals treated, and it is to be wished that works of this quality were more common.

WM. H. DALL

Duc d'Orleans, Campagne arctique de 1907. Par CHARLES BULENS. Bruxelles. 1910–11. *Etude lithologique,* par J. THOULET; *Echinodermes,* par JAMES A. GRIEG; *Mollusques et Brachiopodes,* par PHILIPPE DAUTZENBERG et HENRI FISCHER; *Microplankton des Mers de Barents et de Kara,* par le DR. ALPH. MEUNIER; *Faune des Mousses: Tardigrades,* par FERD. RICHTER; *Journal de Bord, et Physique du Globe,* par A. DE GERLACHE, etc.; *Appendice, Sondages de 1909,* par A. DE GERLACHE; planches et cartes.

The steamer *Belgica,* well known for her explorations in the Antarctic seas, has been engaged in Arctic exploration of late years, under the auspices of the Duke of Orleans and commanded by Commandant A. de Gerlache de Goméry. In 1907 the expedition left the northern coast of Norway at Hammerfest and Vardö, crossed the Murman Sea, circumnavigated the southern island of Novaia Zemlia, skirted the west coast of the northern island, penetrated to about latitude 78° in the Polar Sea, taking numerous soundings, before returning to Norway. In 1909 hydrographic explorations and soundings were made in the Greenland seas. By the munificence of the patron of the expedition the scientific results of the work are appearing in a series of finely illustrated and beautifully printed quartos. A summary of the titles of those which have