latent heat of water, we are told that "a *weighed* quantity of dry ice is now added to the water." Such procedure would, needless to say, be fatal to the accuracy of the measurement. It may be mentioned also that in describing the measurement of an electric current with a tangent galvanometer, the author neither mentions the very necessary adjustment of the coils parallel to the magnetic meridian, nor does he show the bearing of the strength of the earth's field on the absolute value of the current. Altogether, from the point of view of practical physics the book leaves much to be desired. Indeed, the author goes so far as to suggest that the practical part may be entirely omitted.

A further point should be mentioned. Although there is an extensive set of very suitable numerical examples given, practically no specimen examples are solved. It is very doubtful whether an average student could, unaided, successfully attack them. When it is remembered that it is mainly by the frequent use of numerical and practical exercises that the principles of physics are most easily and thoroughly instilled into the mind, it will be recognised how serious are the above omissions.

(2) This book is the third of a series on simple physical measurements, &c., and is drawn up on the same general method as the previous ones, viz. to leave as much as possible to the student's initiative and common sense. The exercises, although still very simple, are of a somewhat higher standard, and include further measurements in the subjects previously dealt with, and a few experiments in elementary chemistry. This method of teaching is somewhat novel, and probably the correct one. Where time is a consideration, however, it may not be practicable.

OUR BOOK SHELF.

A Brief Course in the Calculus. By W. Cain. Pp. x+280. (London: Blackie and Son, Ltd., 1909.) Price 6s. net.

THIS is a new publication of an American book, and deals with both the differential and the integral calculus. Following the more recent English treatises on the same subject, the author begins with an introduction on graphs, in which he confines himself to the simplest cases of the usual functions. The value of such an introduction would, perhaps, be enhanced if the reader were shown how to draw quickly even rough graphs of such functions as x^2+x+1, $(x^2-1)/(x+2)$, &c., indeed, of *rational* functions. The point of view of the author may be obtained from his own words (p. 27):—"The above examples represent loci whose asymptotes are easily determined by inspection. For other cases, particularly where the asymptotes are inclined to the axes, advanced treatises on the Calculus must be consulted."

Derivatives are introduced through the notion of a limit. After the derivative of x^n has been established (without using the binomial theorem), discussion of the slope of a curve and of rates follows. If the graphical part had been developed more fully, the latter notions might have taken precedence of and led up to derivatives. Such a mode of treatment would perhaps have given a greater air of reality to the derivative in the case of readers who have time for only a short course in the calculus, and whose power of mathematical perception has not been highly trained. The author, however, has good authority for the order he adopts, and he keeps well in view the needs of those who want a careful study of the subject as well as those who are likely to apply their knowledge to geometry, mechanics, and physics. He has dealt fully and carefully with the outstanding parts of the subject, and works out many examples; it is doubtless in consistency with his whole aim that he does not give a very large number of examples to be worked out by the reader, in this respect differing from most authors of mathematical books. To teachers and students who prefer a smaller number of examples, and need a work in which the method and province of the calculus are presented by a careful writer, the book can be recommended as likely to be a useful introduction to the subject. P. P.

The Life of a Fossil Hunter. By Charles H. Sternberg. Pp. xiv+286; with 46 plate illustrations. (New York: Henry Holt and Co.; London: George Bell and Sons, 1909.)

THIS is a simple and readable story of the experiences of a fossil hunter in the wild west of North America. As Prof. Osborn remarks in his brief introduction, "the revivification of the past" by the discovery of fossils "is attended with as great fascination as the quest of live game." No one has met with greater success in such pursuits than Mr. Charles Sternberg, the well-known collector of extinct vertebrates, who now recounts some of his experiences during the past forty years; and he has produced a small book which will be read with pleasure by all who are acquainted with the fine specimens which he has obtained for several of the great museums. The well-printed text is illustrated by a large number of inset plates representing scenery, fossils discovered by the author, portraits, and several excellent restorations of extinct reptiles from the American Museum of Natural History, New York.

In the early days of his explorations, Mr. Sternberg was exposed to danger from the Indians whose country he invaded, and there are several interesting stories of his adventures both with them and the settlers. In later years, and even under the most improved conditions, the hardships have still remained considerable, for the most fruitful regions for fossils are always those most destitute of vegetation, where the whole face of the rock is exposed and can be closely scanned. The suffocating nature of the dust and the alkaline or saline condition of most of the available water supply always prove troublesome, and the laborious excavation of fossils in such circumstances, beneath a burning sun, involves real enthusiasm for the work. Mr. Sternberg, after long experience, has brought his methods to perfection, and he gives interesting illustrations of the manner in which the most fragile skeletons can be disinterred from the rock without injury. He began by collecting fossil leaves from the Dakota Cretaceous sandstone. Afterwards, with the encouragement of the late Prof. E. D. Cope, he obtained mosasaurs and fishes from the chalk of Kansas. Then he made several successful trips to the Permian of Texas, in which he discovered numerous new reptiles and labyrinthodonts. Finally, he has worked the Laramie Cretaceous formations of Wyoming, and the Loup Fork Tertiary formation of Kansas. Besides enriching the museums of America, Mr. Sternberg has contributed many important specimens to those of Europe, especially to the Palæontological Museum of Munich and the British Museum. The latter is indebted to him for a skull of Triceratops, a skull and a skeleton of Pteranodon, several Mosasaurians, some fine chalk