

himself the task of devising a course which should guard the student against this danger. Illustrations are drawn from practical engineering, steamships, aeroplanes, motor-bicycles, turbines, &c., which should convince the reader of the real utility of mechanics, and arouse and preserve his interest. Text-books such as this do much to advance the cause of elementary mathematical education by enlarging the mental horizon of the student, and giving him a sound knowledge of the fundamental ideas, such as mass, force, energy, momentum, &c., without which any substantial progress is impossible.

(5) This course of practical arithmetic, geometry, and mechanics is written for first-year students taking a technical course, and is intended to occupy rather more than a hundred hours. The first forty pages deal with fractions, decimals, ratio, percentage, and graphs; the next sixty with the mensuration of the triangle, circle, and simple solids; and the remainder with the principle of the lever, centre of gravity, and the measurement of work. The examples are numerous, simple, and practical.

(6) This small pamphlet gives an account of a graphical method for facilitating numerical calculations required in connection with comparatively complicated formulæ occurring in scientific and engineering work. Although disclaiming any originality for the methods he gives, the author points out that as yet they have received little or no attention from English writers. The theory is not difficult, but those whose mathematical knowledge is small will find it easy to master the practical procedure if they study the examples which are worked out in great detail, although they may consider the nomenclature rather alarming.

(7) There are few subjects which depend so much on the personality of the teacher for their success and the interest they arouse in the student, as geometry. And this applies even more to its higher branches than to the elements. A carefully-chosen course on projection and homography not only stimulates the mind of the pupil by the power and generality of its root ideas, but also induces an enthusiasm which ensures a remarkable rapidity of progress. There are two distinct methods of procedure open to the teacher. On one hand, he may base his work on an analytical foundation, thus making use from the start of imaginary and ideal elements, and so establishing the validity of general projection and the principle of continuity. Properties of homography and involution, and the idea of a one-to-one correspondence, also admit of valuable illustrations from analysis. Or, on the other hand, he may restrict

himself to the methods of pure geometry, and exclude imaginary elements until, at an advanced stage, they emerge from the consideration of an overlapping involution. In the treatise before us the author has adopted the latter method, which we are inclined to think is rather more difficult for the ordinary student. Its contents form a very comprehensive account of the projective geometry of lines and conics up to the standard of a university honours degree. The author writes clearly, and has brought together an extremely interesting collection of properties; the excellence of the diagrams calls for special notice. We do not hesitate to say that those who use this book will gain a sound knowledge and appreciation of the principles of higher pure geometry.

OUR BOOKSHELF.

The Climate and Weather of San Diego, California. By F. A. Carpenter. Pp. xii + 118 + plates. (San Diego: Chamber of Commerce, 1913.)

An excellent little book on the climate and weather of San Diego, South California, has been prepared by the local officer of the weather bureau, and published by the local chamber of commerce. The book contains twenty-seven short chapters dealing partly with San Diego town and bay, partly with San Diego county, and partly with general factors in weather and climate.

The characteristic feature of the climate is the "velo" cloud, to which the place owes its comparatively low summer temperature, in spite of its proximity to the tropics. (The latitude and longitude might with advantage have found a place at the beginning of the book.) The "velo" cloud is a cloud of a low stratus type, which "veils" the sun in the morning, and usually disappears with the coming of the sea breeze in the afternoon.

On the average the sun shines on 356 days of the year at San Diego, and the total rainfall is under 10 inches; at times, therefore, rain is earnestly desired, but we are told in illustration of the importance of local signs in weather-forecasting that San Diego's best-loved priest used to refuse to offer prayers for rain unless the wind had been in the south for three days. The book is eminently readable, and the statistical tables have been infused with a human interest. E. G.

Petrographische Untersuchungen an Gesteinen des Polzengebietes in Nord-Böhmen. By K. H. Scheumann. Pp. vi + 607-776. (Leipzig: B. G. Teubner, 1913.) Price 8 marks.

THE latest number of the *Abhandlungen* of the *Königl. Sächsischen Gesellschaft der Wissenschaften* contains a memoir by K. H. Scheumann on the Tertiary igneous rocks of the Polzen district, in northern Bohemia. These rocks are of the same age as those of the better-known Mittelgebirge, farther west, and have the same alkaline affinities, though there is not the same