

curative properties of fabulous stones, and of the mysterious bezoars, which were thought to have originated in the eyes of deer, in the liver of various animals, or in similar strange ways. The use of precious stones in religious ceremony goes back to a very early date, and still prevails. The instance of the High Priest's breastplate of the ancient Jews is well known, and identification of the stones composing it has given rise to much interesting discussion. A long chapter is devoted to the description of amulets in ancient and modern times, and in the concluding chapter Dr. Kunz has collected many strange stories about precious stones. As an unusually brilliant imaginative effort we may select the old Burmese legend of the origin of the famous ruby mines: "In the first century of our era three eggs were laid by a female *naga*, or serpent; out of the first was born Pynsacoti, a king of Pagan; out of the third came an Emperor of China; and out of the third were emitted the rubies of the Ruby Mines."

The book is superbly illustrated and well printed, and contains an adequate index.

A BIOGRAPHY OF EDISON.

Thomas Alva Edison. By F. Rolt-Wheeler. Pp. ix+201. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1916.) Price 2s. net.

IN this life of Thomas Alva Edison, the author has given a very interesting description of the childhood, youth, and manhood of America's—one might almost say, the world's—greatest living inventor. We learn that, as a boy, Edison proved unsatisfactory under school routine, but was a great success under his mother's private tuition. He incessantly asked questions on and about everything, and insisted on an answer or wanted to know the reason "why." He also showed, from the earliest records, that he was a keen thinker, worker, and planner on all work which interested him, but under "routine" of any kind he was a complete failure.

The account of Edison as a newspaper boy on the Grand Trunk Railroad, and his original methods of disposing of his papers, as well as the description given of his services as a telegraph operator, illustrate the extraordinary ingenuity of the youth. He seems to have an uncanny foresight or "guessing power," as he calls it. He is no mathematician, and declared "he could guess a good deal closer than they could figure." In later years, as he developed his inventions one by one, he collected a number of valuable and enthusiastic assistants. He inherited from his father an exceptional power of gaining the confidence of people in his work and their financial support.

Edison's first important invention was the vote-recorder, which he placed before Congress men, who examined and acknowledged that it was a great success, but thought it was not required. This was a severe shock to the inventor, who at the time was hard up for money and hoped to

make something out of it. But it taught him a lesson; "for there and then he made up his mind never to waste time in inventing things which were not wanted." Later he became manager of the Law Gold Recording Company, and invented many improvements on their instruments. At this time he married, but he denies the story that "he forgot his wife an hour after his wedding." He later became connected with the Western Union Telegraph Company, which gave him every help in completing his inventions. Among these are the duplex and quadruplex telegraphy, also the telephone carbon transmitter, and numerous other inventions well known to all.

On one occasion Edison was asked, "What is a genius?" and his answer is well worth repeating. "A genius is about 2 per cent. inspiration and 98 per cent. perspiration." His part in the construction of the carbon filament lamp (which was not entirely his work, for the late Sir Joseph Swan had much to do with it) is well known, as also in the production of the phonograph, which may be considered the most wonderful of all his inventions, and will always be associated with his name. Of his recent inventions, the storage battery is of enormous importance, especially to England at the present time. It is impossible to give more than a rough impression of his wonderful energy and enthusiasm and his determination to master all problems. America and the world are richer and wiser for his genius; and though he is now sixty-seven years of age, we hope that he will not only reach, but also pass, in activity, the great ages of his father and grandfather. S. G. BROWN.

THE DESIGN OF DIESEL ENGINES FOR MARINE PURPOSES.

- (1) *Land and Marine Diesel Engines.* By G. Supino. Translated by Eng. Lieut.-Commander A. G. Bremner and J. Richardson. Pp. xv+309. (London: C. Griffin and Co., Ltd., 1915.) Price 12s. 6d. net.
- (2) *Diesel Engines for Land and Marine Work.* By A. P. Chalkley. Fourth edition, revised and enlarged. Pp. xvii+368. (London: Constable and Co., Ltd., 1915.) Price 8s. 6d. net.

JUDGED from the titles given above, it might be supposed that these two recently published treatises on the Diesel engine covered the same ground, but a careful perusal will show that the ideas of the authors are by no means identical, and as a result it may be predicted that although both volumes will appeal to all engineers and others who have to do with internal combustion motors and motive power for the propulsion of ships, the first of the above two books is one that will find its way into the reference department of every drawing office where Diesel engines for marine purposes are being designed, whilst the second book, by means of its description of the gradual development of the Diesel engine from the early experimental engines of Dr. Rudolph Diesel down to the modern practice of to-day, will appeal