

Quick-witted and ready to pick out the weak points of an argument or scheme, he was always generous to opponents. He was a great skater and a keen fisherman, the attractions of a good trout stream being so strong that he would walk 10 or 12 miles, fish the whole day, and walk back afterwards, sometimes for three consecutive days. He was full of ideas for the benefit of his workmen and devised and adopted a system of profit-sharing, which completely identified their interests with those of the firm.

JAMES ALEXANDER BETTS, youngest son of the late Mr. Alexander Stewart Betts, was born in London on the 22nd of July, 1845, and was educated at Powis House School, Woolwich, on leaving which he studied telegraphy under his brother, Mr. A. S. Betts, then War Office Telegraphist at Woolwich Arsenal and now Superintendent of the Persian Gulf Cable at Karachi. In 1862 he entered the service of the Electric Telegraph Company and in October, 1863, was transferred to the Submarine Telegraph Company, with which he remained until January, 1865. From that time he did little work until September, 1870, when he was appointed an Inspector in the Engineering Department of the Postal Telegraph Service and stationed at Oxford. Promotion being slow, he resigned in October, 1873, and joined the India-Rubber, Gutta-Percha and Telegraph Works Company as Telegraph Engineer. He studied torpedo work and obtained a certificate from the School of Submarine Mining at Chatham and in October, 1874, entered into an agreement, through the India-Rubber Company, with the Chinese Government to take charge of the Torpedo Service of that Empire.

Mr. Betts acted as Chief of the Chinese Torpedo Service until December, 1879, during which time he planned and carried out the torpedo defences of the Taku Forts and constructed the first telegraph line opened to the public, from Tientsin to Taku, a distance of 47 miles. China, with a coast line between 2,000 and 3,000 miles in length and with many large navigable rivers, is dependent to a great extent on submarine mining for defence against an aggressive fleet. After successfully conducting a series of experiments at Tientsin in 1875 before Li Hung Chang, Viceroy of Chih-li and Secretary of State for War, Mr. Betts was directed to form a School of Submarine Mining. Twenty-four native students, chiefly from the official classes, were obtained and after four years' instruction became so efficient as to form the nucleus of the various torpedo and telegraph departments which have since

been established throughout the empire. It was they who assisted in the construction of the line from Tientsin to Taku above referred to. While at Tientsin he bought for the Chinese Government its first torpedo-boat, a steel steam-launch carrying three spar-torpedoes, and built several spar torpedo-cutters which were manned by native sailors.

At the end of 1879 Mr. Betts returned to England and in April of the following year re-entered the service of the India-Rubber, Gutta-Percha and Telegraph Works Company, which in September, 1881, sent him back to China as its representative. In May, 1883, having been severely wounded in the hand by a sword-cut, he again returned to England, intending to settle down to a quiet country life. A few months later, however, he received a telegram from Chang Shu Sheng, Viceroy of the Liang-Kuang, to return at once and undertake the defence of Canton, in anticipation of war between China and France. A most interesting account of the works he there carried out is given in a Paper entitled "The Torpedo Defence of Canton during the Franco-Chinese War in the years 1884-85," an abstract¹ of which was published by the Institution of Electrical Engineers, of which Mr. Betts was a Member. For his services on this occasion he was created a Mandarin of the third rank and received other marks of appreciation from the Imperial Government, and from the merchants of Canton a valuable silver urn. Unfortunately, however, his health suffered severely from the arduous nature of this work and he was obliged to return to England in 1887.

In the following year, his health being to a certain extent re-established, Mr. Betts accepted the appointment of Manager of the India-Rubber Company's branch at Calcutta, which post, however, he was not destined to occupy long. After three years of hard and up-hill work, and just as the agency was becoming valuable, his health suddenly failed; an attack of inflammation of the liver, following low fever, proved fatal, and he died on the 25th of July, 1892, at the comparatively early age of 47. Mr. Betts' reputation as an engineer in China was considerable and for many years he enjoyed the personal friendship of some of the highest officials of the empire. Long residence enabled him to speak the language fluently and imbued him with a taste for Chinese literature and art, evidence of which was afforded by his large and valuable collection of curios and pottery. He was elected an Associate Member of the Institution on the 6th of March, 1883.

¹ Journal Inst. Electrical Engineers, vol. xix. p. 199.