Obituary Notices

Brigadier-General Sir H. C. L. Holden, K.C.B., F.R.S.

SIR HENRY CAPEL LOFFT HOLDEN died on March 30 at the age of eighty-one years. He was a man of great vision, a distinguished scientific investigator, mathematician and mechanician. His was a versatile and inventive mind which knew no bounds. No matter what the nature of the work or investigation he undertook, he would bring to it an active, keen brain, with freshness of outlook and freedom from the trammels of past practice. He sought to improve on what already existed, or to develop something fresh which would be more effective in its application.

It is now nearly forty years since I came into contact with Sir Capel Holden, when he was superintendent of the Royal Gun Factory, Woolwich Arsenal. He at once impressed me as a man of forceful character and of considerable scientific attainment.

At a time when electric transmission in connexion with machine tools was almost unknown, Holden was a pioneer and applied his talents to the development of an electric drive on machines for the manufacture of guns. He introduced an ingenious magnetic chuck which has had many applications and is still in use in the Royal Arsenal. These pioneer efforts were the forerunners of many of the electrical devices applied to up-to-date machinery of the present day.

Prior to my contact with him, Holden had already shown a flair for experimental work and electrical investigation. Nearly fifty-five years ago when in India, he was given permission to erect a special area line, and the knowledge gained by his tests led to his appointment in the Royal Arsenal, Woolwich, in 1885 as Captain Inspector in the Royal Gun Factory, and afterwards as Inspector of Warlike Stores in 1888. But his innate genius for experimental and electrical work did not find full scope for his abilities until his appointment in the experimental establishment in the Royal Arsenal. Here he built up a reputation as one of the foremost ballistic experts and authorities on gun construction. Among other scientific developments, he modernized and improved the Boulengè chronograph for measuring velocities of ammunition in flight.

At this time, Holden was continuously at work designing instruments and making experiments in internal ballistics and investigating the burning of explosives, which materially improved our knowledge of such matters and led to great savings in expenditure. The most important results of his experiments were embodied in the rules and methods for calculating explosive charges and ballistics in guns. These had formerly been a matter of guesswork, and were actually obtained by trial and error. Since his methods have been in use, it has been easy to predict what are the best proportions of the charge of projectile and what ballastics can be obtained as a maximum from a given gun under different conditions. For his special work in connexion with the foregoing investigations he received a substantial reward from the Government.

In 1899, Holden was appointed superintendent of the Royal Gun Factory, Woolwich, and acted as Chief Superintendent of Ordnance Factories for a short period in 1903. When the Royal Gun Factory and the Royal Carriage Departments were amalgamated in 1907, he was selected for the joint post, which office he held until his retirement in 1912. During this period, he completely revolutionized safety devices for guns and introduced many ingenious mechanical and electrical devices. Standing to his credit are many inventions and improvements which evolved from the fertile brain of this scientific investigator and born engineer. He again received a substantial reward from the Government for these further services. For many years, Sir Capel served as an official member of various committees, where his wisdom and advice were greatly sought after.

Yet, amid all the activities directly connected with his official post, Holden's inventive powers sought other fields of investigation. His energies directed him to take up motor engineering, in which he sought to perfect an engine for use in a motor-car and motor-cycle, and a four cylinder 'Holden' motor-cycle of his design, which embodied many ideas in advance of the then current practice, was put on the market. In 1905 he became chairman of the Royal Automobile Club, and afterwards, in 1921, chairman of the Royal Aero Club.

Holden's scientific attainments brought him early to the fore-front as a clear-thinking investigator of a high order. This was recognized by his election to the Royal Society more than forty years ago. He was called from his retirement to be Director of Mechanical Transport at the War Office in 1914, and served at the Ministry of Munitions in 1917–18. For his further services to the Government he was honoured by His Majesty the King by being made a Knight Commander of the Order of the Bath.

Sir Capel's services to electrical science and its application to electrical and mechanical development were clearly recognized by his election to full membership of the Institution of Electrical Engineers, and afterwards he became a vice-president of the Institution. He was also a vice-president of the Royal Society of Arts and in 1927 president of the Radio Society of Great Britain.

It is difficult, if not impossible, to estimate with any degree of accuracy, the value of the service Sir Capel rendered to his country and to the armament and engineering industries; but it may be said of him, as of other great engineers, that he wrested from Nature some of her secrets and used them for the benefit and convenience of mankind.

FRANCIS CARNEGIE.