

intelligent men who studied the ways of nature and the necessities of their fellow beings and who put their knowledge to practical use. As these are expressly the functions of the engineer, these men may be termed the world's earliest engineers. The first step in advancement could not have been made without them, and in succeeding ages, as the wants of mankind increased, the services of the Engineer became still more indispensable. The Arts, Sciences and Manufactures could not thrive without his assistance, and progress and the spread of enlightenment and Christianity throughout the world are due chiefly to his exertions.

The universe, of which this planet forms but an atom, is planned and governed on sound engineering principles under laws which are immutable, and these laws are the same which guide the Engineer and upon which he places his dependence and bases his calculations. When he is ignorant of them, or is so bold as to disregard or depart from them, disaster follows, involving, not only himself, but countless others who are dependent upon his judgment.

It is not usual in an address of this kind to refer to Scripture, but the Book of Books contains so much of interest to engineers and so many references to engineering undertakings that I trust a slight digression may be pardoned.

When God answered Job out of the whirlwind, He said, "Where wast thou when I laid the foundation of the earth? Declarest thou hast understanding. Who determined the measures thereof? Thou knowest? Or who stretched the line upon it? Whereupon were the foundations thereof fastened? Or who laid the corner stone thereof; when the morning stars sang together, and all the Sons of God shouted for joy? Or who shut up the sea with doors, when it brake forth, as if it had issued out of the womb?"

This is the first authentic account we have of the beginning of engineering. At this interview we find the great Engineer of the Universe conversing with man on purely engineering subjects relating to the stability of structures, the determination of quantities, surveying and the science of hydrology. It seems evident, therefore, that in Job's time mankind must have made considerable advancement both in the theory and practice of Engineering.

The term "Engineer" meaning literally "one who makes or uses an engine" was first applied "exclusively to military men charged with the construction and use of artillery and siege trains." In later years, and as other engines than those required for the purposes of war came into more general use, the term came to be applied indiscriminately to men in different stations in life, whose occupations require them in some way or other to direct or utilize the great sources of power in nature for the service of man. Thus we find men of high scientific attainments and refinement, and men