THE GAS ENGINE

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DUGALD CLERK

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PREFACE.

In this work the author has endeavoured to systematise the knowledge in existence upon the subject, and to explain the science and practice of the Gas Engine in a way which he hopes may be useful to the engineer.

The historical sketch with which the book opens proves that, like other great subjects, the gas engine has long occupied men's minds.

The first six chapters treat of theory, including the distinguishing features of the gas engine method, classification, thermodynamics of the various types, and the chemical and physical phenomena of combustion and explosion.

In the seventh chapter, standard engines illustrative of the different types are described, and tests from each engine for power and consumption of gas are given. The diagrams and efficiencies are shortly discussed, compared with theory, and the various sources of loss pointed out.

The eighth chapter deals with typical igniting arrangements, and the ninth with governing gear and other mechanical details.

The tenth chapter briefly describes and discusses various theories which have been propounded concerning the action of the gases in the cylinder of the gas engine and in gaseous explosions.

In the last chapter the great sources of loss of heat still existing in the best gas engines are discussed, with the object of pointing out the way still open for further advance.

Many of the tests and most of the theoretical and practical discussion, result from the author's personal experience with the gas engine.

In the chapter on thermodynamics the author is much indebted to the work of the late Prof. RANKINE, and he has adopted, in treating of efficiency, some of the elegant formulæ of Dr. AIMÉ WITZ, of Lille, to whom as well as to Prof. SCHÖTTLER and Prof. THURSTON he has much pleasure in expressing his indebtedness.

D. C.

BIRMINGHAM : *July* 1886.

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