

would have liked. The work has been illustrated throughout by numerous examples so chosen as to explain difficult although not unusual practical cases, and as far as possible the effort has been to put the material in readable form.

Some little attention has been devoted to the virtual centre because of the importance of the idea upon which it is based, and because of its usefulness in certain cases, but constructions involving its use frequently become so complicated as to render the method impracticable.

It is thought that the "phorograph" introduced in Chapter IV, is now published for the first time, and the author has found the constructions involved so simple and compact that he has used it almost exclusively. Very much of the remainder of the book is based upon a knowledge of the phorograph, and its use gives very simple methods for determining accelerations, kinetic energies of links, etc.

In the chapter on governors the author has consulted quite freely the very excellent book by M. Tolle "*Die Regelung der Kraftmaschinen*," which is a most comprehensive treatment of this very important part of machines. The characteristic curve has been employed quite broadly in his treatise and the author's regret is that space prevents its wider use in the present volume. The same author's work has also been used in other parts of this book and has been acknowledged.

The chapter on efficiency follows the treatment of Rankine and of Kennedy. The latter author's book on "*The Mechanics of Machinery*" was very often consulted, and certain parts of the book are based largely on Kennedy's volume.

In addition to the above authorities, the name of Prof. T. R. Rosebrugh, of the University of Toronto, should also be specially mentioned, acknowledgment of his work in the discovery of the phorograph having also been made in the body of the book.

Certain parts of the book were written under very great pressure, in order to meet the needs of the classes in the University of Toronto, so that mistakes have probably crept in, but as much care as possible has been taken to make the work accurate and it is hoped that any errors occurring will not be of such a nature as to mislead the reader.

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University of Toronto,
Toronto, August 15, 1912.