

**PUMPS: HISTORICALLY,
THEORETICALLY, AND
PRACTICALLY
CONSIDERED**

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Pumps: Historically, Theoretically, and Practically Considered by Philip R. Björling

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HISTORICALLY, THEORETICALLY, AND
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BY

PHILIP R. BJÖRLING

AUTHOR OF 'PRACTICAL HANDBOOK ON PUMP CONSTRUCTION';
'PRACTICAL HANDBOOK ON DIRECT-ACTING PUMPING ENGINE AND
STREAM PUMP CONSTRUCTION'

SECOND EDITION

WITH 156 ILLUSTRATIONS



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E. & F. N. SPON, 125 STRAND

New York

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1895

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PREFACE.

To fully particularise even such pumps as are at present in the market, giving those desirable features which the makers from practice or vivid imagination believe to be embodied in their productions, would require a huge mass of catalogues and specifications, which, like most heterogeneous collections, would contain its quantum of unnecessary matter.

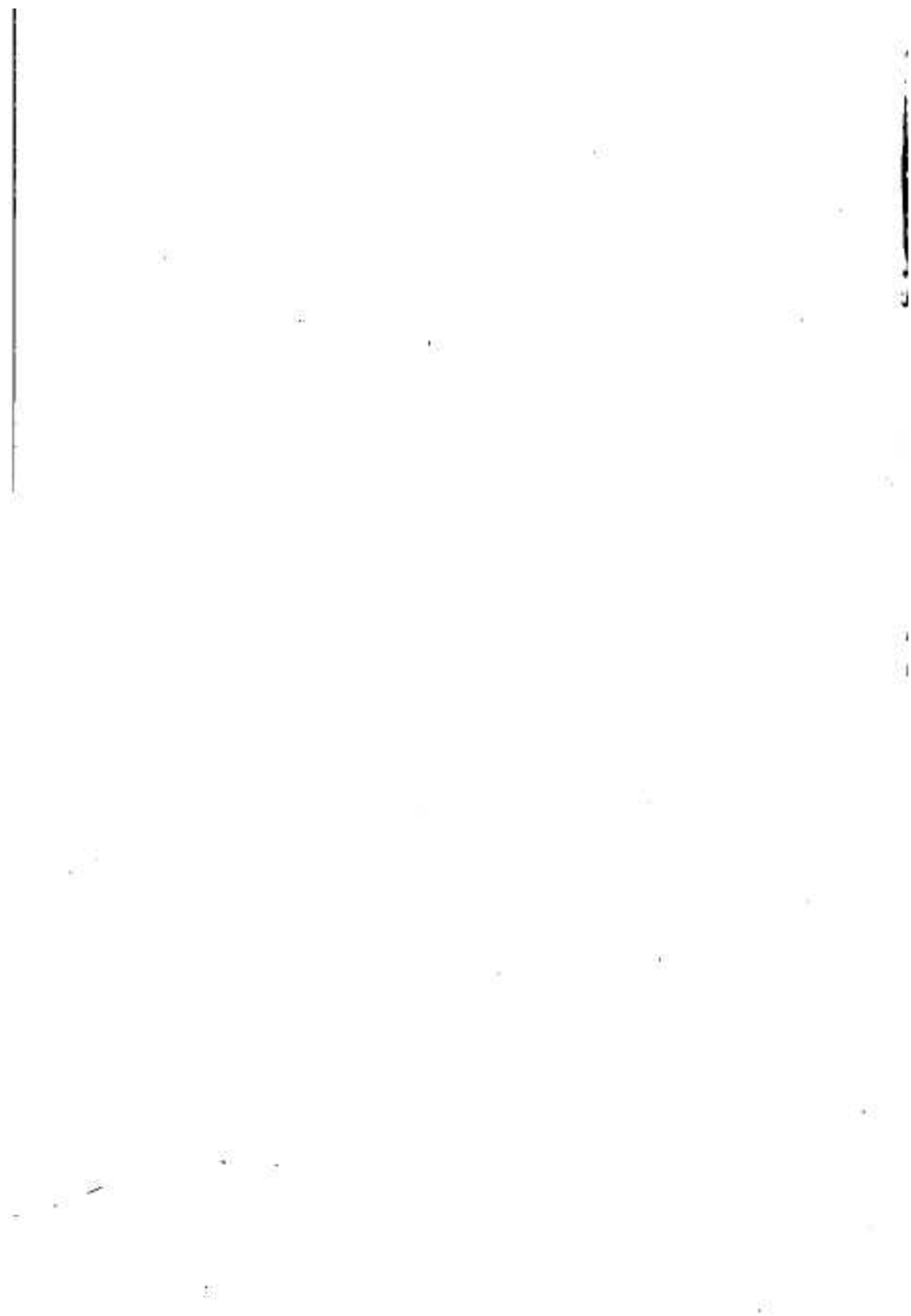
Therefore, only such examples are here taken as will make the progress of pumps sufficiently clear; novelty in design being also considered.

Of their respective merits, an appreciation or otherwise is left for the Reader; he may secure the pleasure of self-satisfaction regarding his own opinion, or, in the event of sufficient proof not being forthcoming, he may, without any great exertion, have his particular penchant firmly substantiated by any particular maker, or by any maker except that individual one, as the case may require.

To those anxious of making some new departure in pump construction, it is hoped the examples chosen will be of service. If such is the case, this Book will then have fulfilled the ulterior aim of the Author.

P. R. B.

BURTON-ON-TRENT,
1889.



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PUMPS:
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INTRODUCTION.

IN reviewing the Author's 'Practical Handbook on Pump Construction,' the American paper *The Mechanical Engineer* says:—"A pump is not a very intricate machine in itself, and its parts are comparatively few; but its action, or want of it, sometimes makes it seem most mysterious."

To those who have not considered the question of water dispensation, the remark that "pumping machinery" stands pre-eminent among the various branches of engineering, may seem to allow of discussion. A few instances will very soon give the necessary proof:—

How could our coal be obtained were it not for the pumping plant?—our water supply obtained, or our capital sewage works and chemical works be carried on?

When man enters Nature's storehouse in search of wealth, he finds water ever ready to dispute his supremacy. It may be in a constant stream, varying only with the season; oftentimes vast quantities are stored in crevices