

**STREET RAILWAY MOTORS: WITH  
DESCRIPTIONS AND COST OF PLANTS  
AND OPERATION OF THE VARIOUS  
SYSTEMS IN USE OR PROPOSED FOR  
MOTIVE POWER ON STREET RAILWAYS**

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Street Railway Motors: With Descriptions and Cost of Plants and Operation of the Various Systems in Use or Proposed for Motive Power on Street Railways by Herman Haupt

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**HERMAN HAUPT**

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John Cooper  
Burg's Engineer

STREET RAILWAY MOTORS.



*John Warner-Jones* <sup>St. Railway</sup>  
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DESCRIPTIONS AND COST OF PLANTS AND  
OPERATION OF THE VARIOUS  
SYSTEMS IN USE

OR PROPOSED FOR

## MOTIVE POWER ON STREET RAILWAYS.

BY

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## PREFACE.

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THE present age seems to be peculiarly prolific in the invention of motors for street railways and in new applications of old and recognized motor forces for propulsion of the cars used for urban and suburban transit. Some of these possess decided merits, and present claims for the support of capitalists and of the public that are, at least, worthy of careful examination; others are advanced by parties who are evidently ignorant of the thermo-dynamic, chemical, and mechanical laws upon which some of these operations depend, and schemes are sometimes presented that are visionary and impracticable. A brief review of the plans proposed for street railways, their merits and defects, with the cost of plant and of operation, will probably possess sufficient interest at the present time to excuse the preparation and publication of this volume.

The aim of the writer has not been to furnish an elaborate treatise requiring for its comprehension a high degree of technical knowledge, but rather a simple statement of principles and their applications that will be

readily comprehended by persons of limited scientific attainments—a treatise for the use and information of investors and of the public.

The subjects here considered are horse railroads, steam motors, cable traction, electric roads, compressed-air motors, ammonia motors, hot-water motors, gas motors, and carbonic-acid motors.

It is not proposed to attempt any details of mechanical construction or furnish illustrations. This ground has been fully covered by several volumes already published. The object is simply to give results, with such simple explanations of principles as will be of interest and be intelligible to practical men who may be called upon to contribute capital for construction or use their votes or influence in favor of any proposed system of rapid or local transit in cities.

PHILADELPHIA, March 25, 1893.

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#### ADDRESS.

As frequent inquiries are made for the address of the author, it may be well to state that his permanent summer residence is at St. Paul, Minn.

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