

**GEOLOGICAL COMMISSION
OF BRASIL: GEOGRAPHICAL
SURVEYING, ITS USES,
METHODS AND RESULTS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649592456

Geological Commission of Brasil: Geographical Surveying, Its Uses, Methods and Results by
Frank de Yeaux Carpenter

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

FRANK DE YEAUX CARPENTER

**GEOLOGICAL COMMISSION
OF BRASIL: GEOGRAPHICAL
SURVEYING, ITS USES,
METHODS AND RESULTS**

VAN NOSTRAND'S SCIENCE SERIES.

- No. 17.—WATER AND WATER SUPPLY. By Prof. W. H. CORFIELD, M. A., of the University College, London.
- No. 18.—SEWERAGE AND SEWAGE UTILIZATION. By Prof. W. H. CORFIELD, M. A., of the University College, London.
- No. 19.—STRENGTH OF BEAMS UNDER TRANSVERSE LOADS. By Prof. W. ALLEN, Author of "Theory of Arches." With Illustrations.
- No. 20.—BRIDGE AND TUNNEL CENTRES. By JOHN B. McMASTERS, C. E. With Illustrations.
- No. 21.—SAFETY VALVES. By RICHARD H. BUEL, C. E. With Illustrations.
- No. 22.—HIGH MASONRY DAMS. By JOHN B. McMASTERS, C. E. With Illustrations.
- No. 23.—THE FATIGUE OF METALS UNDER REPEATED STRAINS, with various Tables of Results of Experiments. From the German of Prof. LUDWIG SPANGENBERG. With a Preface by S. H. SHREVE, A. M. With Illustrations.
- No. 24.—A PRACTICAL TREATISE ON THE TEETH OF WHEELS, with the Theory of the Use of Robinson's Odontograph. By S. W. ROBINSON, Prof. of Mechanical Engineering. Illinois Industrial University.
- No. 25.—THEORY AND CALCULATIONS OF CONTINUOUS BRIDGES. By MANSFIELD MERRIMAN, C. E. With Illustrations.
- No. 26.—PRACTICAL TREATISE ON THE PROPERTIES OF CONTINUOUS BRIDGES. By CHARLES BENDER, C. E.
- No. 27.—ON BOILER INCRUSTATION AND CORROSION. By F. J. ROWAN.

VAN NOSTRAND'S SCIENCE SERIES.

- No. 28.—ON TRANSMISSION OF POWER BY WIRE ROPE. By ALBERT W. STAHL. Fully illustrated.
- No. 29.—INJECTORS; THEIR THEORY AND USE. Translated from the French of M. LEON POUCHET. Illustrated.
- No. 30.—TERRESTRIAL MAGNETISM AND THE MAGNETISM OF IRON SHIPS. By PROF. FAIRMAN ROGERS. Illustrated.
- No. 31.—THE SANITARY CONDITION OF DWELLING HOUSES IN TOWN AND COUNTRY. By GEORGE E. WARING, Jr., Consulting Engineer for Sanitary and Agricultural Works.
- No. 32.—CABLE MAKING FOR SUSPENSION BRIDGES, as exemplified in the Construction of the East River Bridge. By WILHELM HILDENBRAND, C. E. Fully illustrated.
- No. 33.—MECHANICS OF VENTILATION. By GEORGE W. RAFTER, Civil Engineer.
- No. 34.—FOUNDATIONS. By PROF. JULES GAUDARD, C. E. Translated from the French, by L. F. VERNON HARCOURT, M. I. C. E.
- No. 35.—THE ANEROID, AND HOW TO USE IT. Compiled by PROF. GEORGE W. PLYMPTON. Illustrated.

18mo, boards, 50 cents each.

~~1/2~~ Sent free by mail on receipt of price.

D. VAN NOSTRAND, Publisher.

23 Murray and 27 Warren Sts., New York.

6303394

6291
SQF
C22

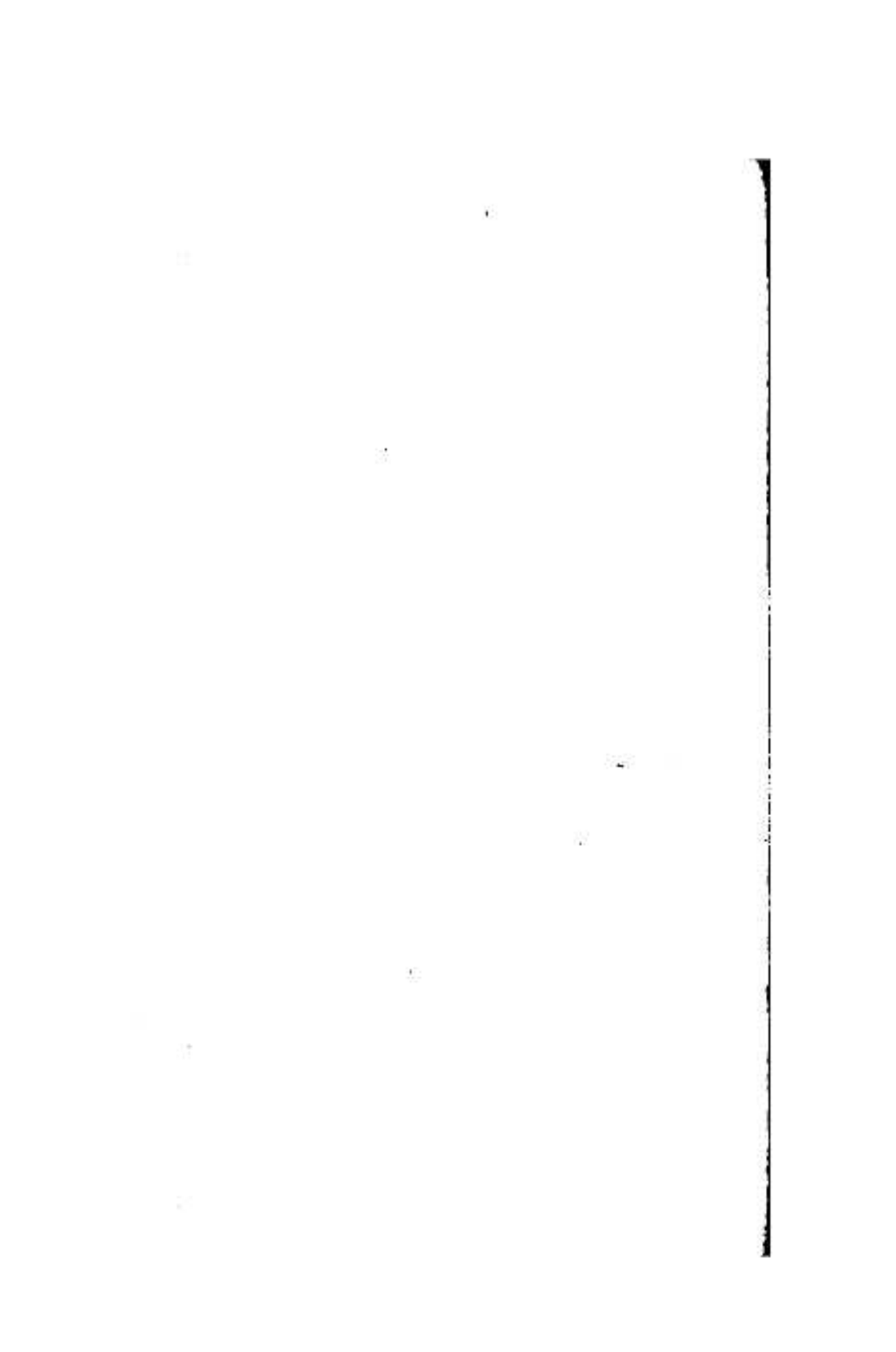
PREFACE.

CHARLES FREDERIC HARTT, Professor of Geology in the Cornell University, and Chief of the Geological Commission of Brazil, died on the eighteenth of March last, in Rio de Janeiro, where he was engaged in preparing the reports of his Survey.

His death and the dissolution of the Commission, of which he was the founder and director, have prevented the realization in Brazil of the plan of surveying proposed in the accompanying pages.

F. D. Y. C.

NEW YORK, *July*, 1878.



GEOGRAPHICAL SURVEYING.

IN this paper I shall present a scheme for the organization, the gradual development, and the prosecution of a geographical survey in connection with the Geological Commission, which, in the efficiency of its results, will satisfy not only the present demands but also the future needs of the Empire of Brazil for very many years to come. In the rapidity of its progress, this survey will be especially adapted to a country of so vast an area and comparatively sparse population, and as an adjunct to the above Commission, and in great part carried on by the members of the same, without interfering with the ends of that body, it can be maintained at an expense so moderate as to be in conformity with the present desire for econ-

omy and retrenchment in the public service.

THE PROPOSED PLAN OF SURVEY.

The immense empire of Brazil is yet without reliable geographical maps. These are necessary to the national welfare. The question arises as to what kind of maps will be sufficient to satisfy the imperative needs of the country and of science. The plan of survey which I shall advocate is a mean between that system which takes cognizance of every house in a village and every little undulation in the landscape, and that want of system in which are represented whole mountain-chains that do not exist, or actual topographical features are delineated with gross inattention to accuracy. It is a judicious mean between the slow and laborious processes used, for instance, in the Ordnance Survey of Great Britain, and the sketchy and unreliable information gained by the early explorers of the New World, from whose results our first maps were compiled.

These last are scarcely more graphic and complete than our present maps of the moon, and in fact, speaking broadly, they are not so accurate as the latter, which are, in great part, photographs of the surface which they represent. With these mere hints of the geography of its country a people should not feel obliged to rest satisfied until it can sustain a minutely topographical survey.

AN EVOLUTION IN CARTOGRAPHY.

The demand for maps depends upon the population and civilization of a country. In the beginning a rough sketch will answer the purposes of the pioneer. As the region becomes inhabited better maps are wanted, and finally the people require the nearest possible approach to absolute accuracy in the delineation of topographical features. Map-making in every country must follow a regular evolution from the incomplete to the complete.

Reviewing the origin and growth of the cartography of a country, we see how faulty it is liable to be. The first ex-