

**THE BLOOD SUPPLY TO THE  
HEART IN ITS ANATOMICAL  
AND CLINICAL ASPECTS. WITH  
AN INTROD. BY HORST OERTEL**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649145454

The blood supply to the heart in its anatomical and clinical aspects. With an introd. by Horst Oertel by Louis Gross

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Cover @ 2017

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**LOUIS GROSS**

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# THE BLOOD SUPPLY TO THE HEART

IN ITS ANATOMICAL AND CLINICAL ASPECTS

BY

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WITH TWENTY-NINE FULL PAGE PLATES  
AND SIX TEXT ILLUSTRATIONS



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NEW YORK

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*Printed in the United States of America*

TO MY ALMA MATER  
AND  
ALL THOSE FROM WHOM SHE DREW  
HER GREATNESS AND NOBILITY  
THIS BOOK IS DEDICATED  
ON THE OCCASION OF  
THE MC GILL UNIVERSITY CENTENNIAL  
OCTOBER, NINETEEN HUNDRED AND TWENTY-ONE





## INTRODUCTION

THIS monograph on the blood supply to the heart in its anatomical and clinical aspects is the outcome of investigations which Dr. Gross commenced several years ago in the laboratories of the Royal Victoria Hospital and of McGill University. They formed originally part of a general study dealing with structural evolution of organs in the various age periods in its relation to normal function and disease.<sup>1</sup>

It soon became apparent to me that in these researches Dr. Gross had, with rare industry and ingenuity, gone far beyond the original questions and that the results of his work touch upon a larger number of problems which are not only of anatomical, but also of great clinical interest and importance. The extent of the work and the accumulated material and illustrations had also gone far beyond the original scope of a paper and it was therefore considered advisable to publish it in monograph form. This allowed a further extension and inclusion of a thorough critical review, and incorporation of previous literature—by itself a useful undertaking. The work, therefore, places before us:

First: A complete description of the arterial and venous blood supply to the normal heart with a statistical study of its variations.

Second: The blood supply to the neuromuscular system of His and its pathological and clinical significance.

<sup>1</sup> See Oertel, Post-Natal Development and Pathological Organ Reconstruction in Relation to Function and Disease, *Am. J. M. Sc.*, May, 1921, p. 694.

Third: A new standpoint in the discussion of the anatomical factors concerning the etiology and development of valvular endocarditis.

Fourth: A newer view on the physiological course and character of the cardiac circulation in the various age periods and their relation to physiological and pathological functions.

The monograph contains, so far as I know, a complete presentation of the subject to date and possesses for anatomist, physiologist, pathologist and clinician alike an unusual combination of interest and usefulness.

Mr. Hoerber's rare good will to publish the work is an illustration of his unselfish, scientific spirit.

HORST OERTEL.

McGill University and The Royal Victoria  
Hospital, Laboratories of Pathology,  
Montreal, *July*, 1921.

## PREFACE

THE author was primarily interested in the study of the circulation of the heart in its relation to age periods and in its pathological variations. For a full appreciation of the changes in the cardiac circulatory architecture under these conditions, it was found advisable to make a thorough study of the normal.

A review of the literature proved inadequate to allow an intelligent grasp of the subject and only served to perplex by its chaotic state. With much difficulty it was attempted to coordinate the various views, and there remained many points of dispute and a large number of problems. The author consequently made a personal study of the circulatory structure in the normal heart in order to investigate as many of the moot points as possible and also to acquire a standard for comparison with the results of future investigations into pathological conditions.

In the course of this research a technique was developed, which, it is believed, is eminently suited for investigations of this nature. Many of the disputed points have been, it is hoped, settled and a number of new and interesting fields for speculation, opened. Chief among the latter is the question of the effect of age on the course, character and physiology of the cardiac circulation. It was found that a very characteristic series of changes takes place as age progresses. This appears, by itself, an interesting contribution to the clinical