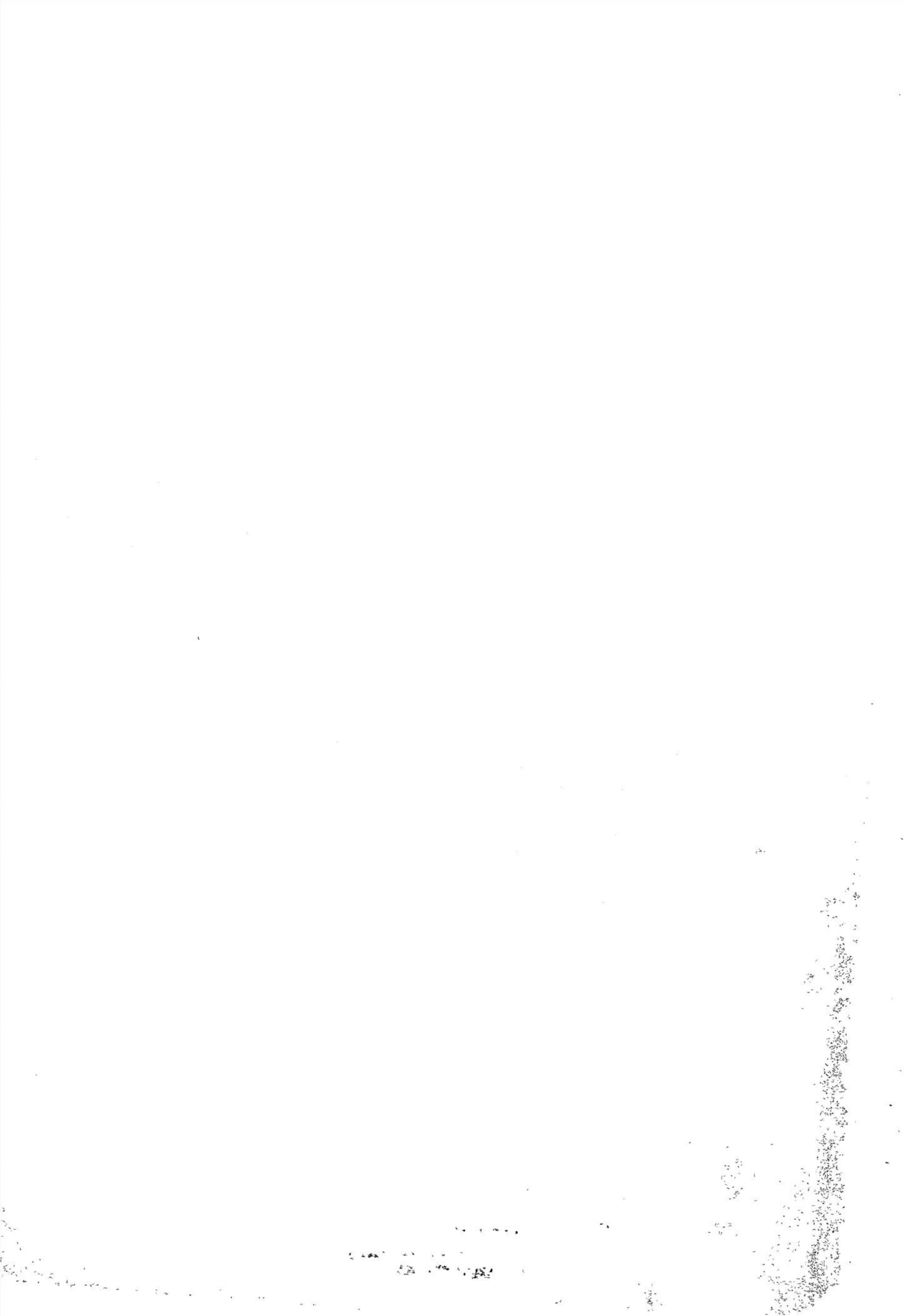






The Lymphatics of the  
Female Genital Organs





The  
LYMPHATICS  
of the  
FEMALE  
GENITAL ORGANS

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## FOREWORD

The problem of lymph nodes in genital carcinoma has become more and more important during recent years. Many surgeons set great value on the removal of the regional lymph nodes in the surgical treatment of female genital carcinoma. In the United States, Tausig goes so far as to remove only the lymph nodes, leaving the carcinoma of the cervix and the surrounding connective tissue for irradiation.

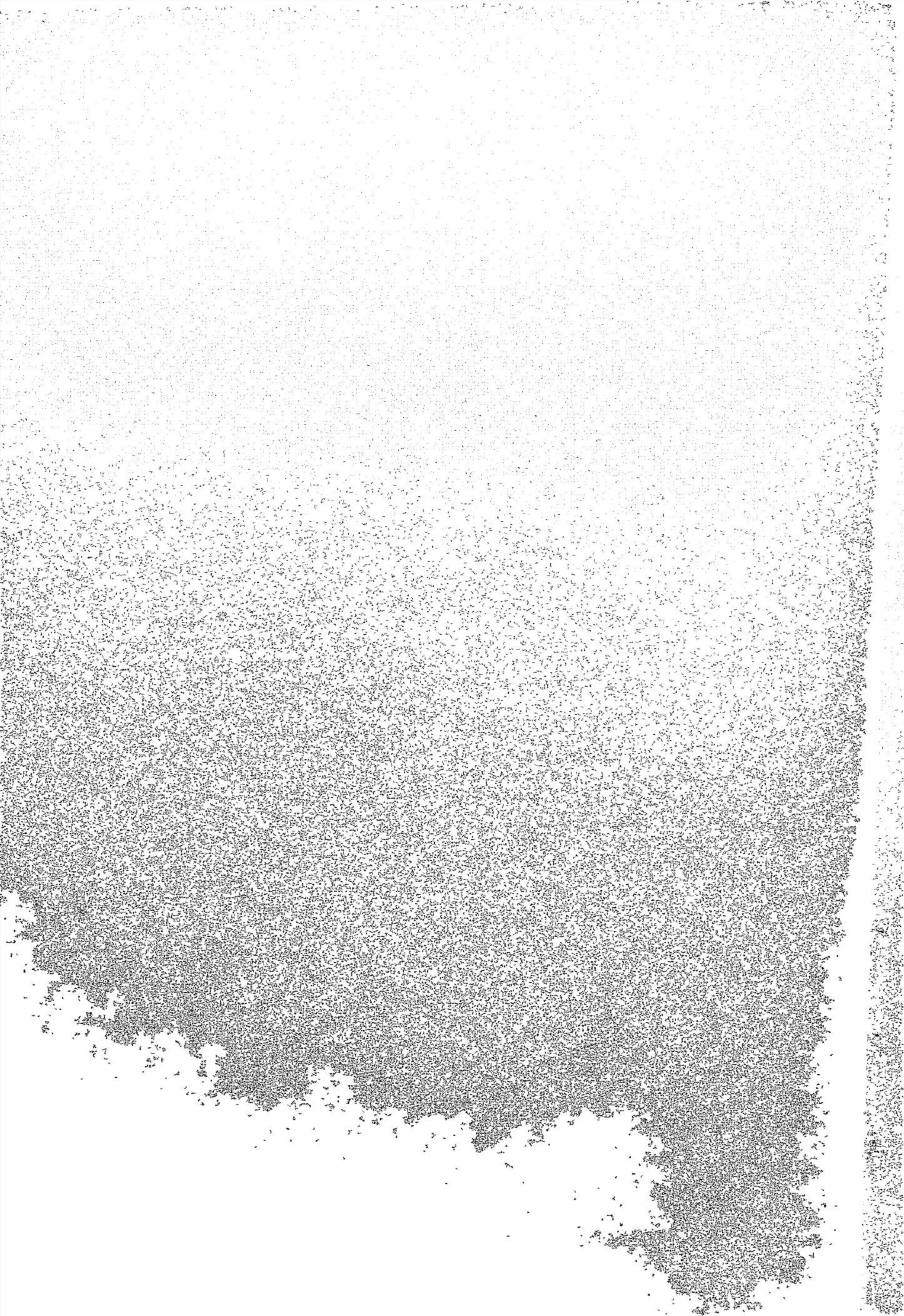
The successful removal of lymph nodes requires, above all, a thorough knowledge of the exact anatomic situation, but the clinical findings in a case do not always correspond to so-called normal anatomy. At my proposal, the lymphatic system of the female genitalia was investigated again. In several years of research, Reiffenstuhl produced much new information which is important in

the surgical treatment of carcinoma of the cervix. The accuracy of this work is attested to by Prof. Hafferl, Head of the Anatomical Institute of the University of Graz, who kindly took a great interest in this problem. In addition, I studied every specimen and obtained a very clear picture of the lymphatic system of the female pelvis because of the careful preparation of the lymph vessels and nodes. The illustrations of the anatomic conditions found are excellent.

Because of the new information resulting from Reiffenstuhl's work, more exact treatment of carcinoma of the cervix is possible. It is to his credit that now we can see clearly the most important routes by which genital carcinoma progresses and that we can make exact decisions concerning the treatment of the lymphatic system.

PROF. AMREICH  
*Vienna*







## PREFACE

The problem of lymphadenectomy in the surgical treatment of carcinoma of the cervix is a major topic of discussion today. If one is to remove the regional lymph nodes of the cervix successfully, one must have an exact knowledge of the anatomy of the lymph system of the pelvis. Therefore, more research on the female pelvic lymphatic system was necessary.

Prof. Amreich (Vienna) initiated these investigations. The work was done at the Anatomical Institute of the University of Graz, Austria (Head, Prof. Dr. A. Hafferl), beginning in 1951 and continuing for 6 years. In 1957 the results were published in German by Messrs. Urban & Schwarzenberg, Vienna.

Great importance was attached to the

careful execution of the illustrations because they leave the most permanent impression on the reader. Also, particular attention should be paid to the legends which complement and, indeed, complete the text. The excellent drawings of the specimens were done by F. Batke, K. Endtresser, L. Schrott and E. Siber, MM.AA.

After the German edition appeared, it became obvious that an English translation was desired, and I am greatly indebted to Messrs. Urban & Schwarzenberg (Vienna-Munich) for their generous permission for such a translation.

I am also grateful to the J. B. Lippincott Company for their care in the production of this book.

Finally, I should like to express my gratitude to Dr. Ekvall for the English translation.

G. REIFFENSTUHL  
*Vienna*







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## Part One

### INTRODUCTION

It is well-known that carcinomas have a great tendency to spread by way of the lymphatic system. The gynecologic surgeon needs to make careful anatomic studies of the healthy lymphatic system of the female genitalia in order to be able to evaluate pathology of the lymph apparatus correctly, and he must guide his therapeutic program accordingly.

Information on the number and the location of groups of lymph nodes in the pelvis and their area of drainage, as well as the course and the type of the major lymph vessels of the female genitalia, is found in handbooks of anatomy and almost every textbook of gynecology. Most of the descriptions in newer texts of topographic anatomy are based on special studies published around the turn of the century. The gynecologic textbooks dealing with the lymphatic system of the female genitalia partly concur with these special studies, but one also finds excellent descriptions of the course of lymphatic vessels and the topographic location of lymph nodes which are accepted on the basis of many years of clinical experience and operative findings but are unknown anatomically.

In the study of the literature on the

lymphatic system of the female genitalia one is amazed at the multiplicity of existing names for regional lymph nodes, especially those of the uterus and the vagina, but also of the tubes and the ovaries. Frequently, the same name is used for lymph nodes whose topographic location is given quite differently by various authors, as will be demonstrated later. Conversely, different names may be given to the same lymph node. This fact makes the study of the literature on the lymphatic system of the female genitalia especially difficult and is one of the reasons why descriptions in recent textbooks of anatomy are rather abbreviated.

The lymph vessels in the human organism generally (but not always) follow the course of the blood vessels. In their course in the true pelvis, the blood vessels of the inner female genitalia utilize the denser connective tissues which may be considered as auxiliary vessels (in fixation, especially of the uterus, these tissues have no special importance). Therefore, in the description of the course of the lymphatic vessels, the pelvic connective tissue must be observed carefully, since a close connection exists between the two here, also.