THE POSTMORTEM EXAMINATION

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PREFACE

THIS BOOK is intended to make available an orderly presentation of the methods used in the performance of a complete autopsy. It is written in response to a need made evident in the teaching of medical students, young pathologists, and clinical house-officers who are able to spend but a short time in the laboratory before assuming ward duties. The medical student should be encouraged to develop the "autopsy habit" early in his career. The cultivation of this habit throughout his future practice of medicine should furnish him a source of information that will yield an objective evaluation of the accuracy of clinical diagnosis and the efficacy of treatment. Moreover, the practitioner who must on occasion perform an autopsy without expert aid, may find guidance in the chapters which follow. The availability in the English language of a description of methods used both here and abroad, may serve to encourage the performance of autopsies in this country and help in the attainment of greater uniformity and thoroughness.

It is recognized, of course, that the best way to learn autopsy technique is in the autopsy room, under the direction of a skilled pathologist. For the beginner, however, this presentation may serve as an introduction to the actual performance of an autopsy and as a means of shortening the period of ineffective work and distress characteristic of the early days in any new field.

No claim to originality is made for the contents of this book. Most modern autopsy technique is based upon the original methods of either Virchow or Rokitansky. Since no one technique is adequate under all conditions, neither the traditional Virchow method nor the popular Zenker procedure has been followed in full. No attempt has been made to launch a new system of autopsy technique. Every pathologist of experience eventually works out his own variations of the original technique, and for that reason, alternative possibilities have been

outlined wherever indicated. While due regard has been given methods used in other laboratories, this book is based in large part on procedures found useful in the routine performance of autopsies in the several hospital laboratories under the direction of Professor S. Burt Wolbach. In these laboratories (The Boston Children's Hospital, the Peter Bent Brigham Hospital and the Boston Lying-In Hospital), the dead-house of twenty years ago is no longer apparent. All the virtues of the old autopsy room have been preserved, but the morgue has been replaced by a department of pathology where work is carried on with the cleanliness, efficiency and dignity of a well conducted surgical operating room.

In the preparation of this book I have been aided by a considerable number of persons, to whom I make only general acknowledgments. Specific thanks are due my chief, Dr. S. Burt Wolbach, for advice, stimulation and a critical reading of the manuscript. Dr. Shields Warren has given valuable suggestions regarding the text, and Dr. Irving Akerson expert help in the choice of illustrations. For constant assistance in the preparation of the manuscript I am indebted to my wife. Dr. Charles Ferguson and Dr. Robert Moulton assisted in the correction of the final text. Thanks are due Miss Helen Purtle for her careful typing of the manuscript.

Miss Etta Piotti is responsible for the drawings. In a number of instances, these have been influenced by the illustrations in the books of Nauwerck and of Fischer-Wasels. I am particularly indebted to Professor Fischer-Wasels, whose excellent and well illustrated little book suggested the advisability of a work on autopsy technique in this country. Personal experience in several German laboratories has affected the treatment of the subject. I owe a peculiar debt to the late Carl Benda, who guided my first primary incision.

Finally, it is pleasant to recall with gratitude the stimulating coöperation of Mr. Charles C Thomas.

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CONTENTS

Chapter

Chapter

Chapter

Appendix

ILLUSTRATIONS

Figure

THE POSTMORTEM EXAMINATION

CHAPTER I

HISTORICAL INTRODUCTION

MODERN medicine properly begins with the institution of systematic autopsies, characterized by thorough examination and objective description. Before the adoption of the complete autopsy, clinical medicine rested upon scattered observations of great merit, obscured in considerable part by hopeless speculation concerning the seat, cause and nature of disease. The autopsy substituted the dead house for the savant's arm chair, as a source of information about disease. By its means, objectivity of thought and method replaced the more comfortable but disastrous practice of building complex classifications of disease from the fertile brain of the non-observing thinker. For a long period in the history of medicine, the autopsy played but an insignificant and intermittent rôle. It was not until after the first half of the nineteenth century that the autopsy assumed its proper position of importance. In the brief biography of the autopsy which follows, we have selected only those episodes which have a definite bearing on the development of technique or on trends of medical thought in relation to the autopsy. For the interested student, numerous reference works and original sources are available.

But little is known of postmortem examinations before the end of the thirteenth century, when, during a plague in Italy in 1286, a physician of Cremona opened many bodies to discover the cause of the pestilence.[1] The plague apparently inspired much of the early interest in the autopsy. In a letter from Avignon concerning the "Black Death" (1347-1350), a cleric of The Netherlands wrote that the opening of bodies had been ordered by the Pope to ascertain the cause of the disease.[2] There is evidence that during the early part of the fourteenth century autopsies were being openly performed in Bologna. An actual report of an examination ordered by the Court in 1302

to determine whether the deceased had been poisoned, includes the words: "We have assured ourselves of the condition by the evidence of our senses and by the anatomization of the parts." An illustration of a postmortem examination, dated about 1300, and reproduced by Singer[3] from the original in the Bodleian Library, depicts a surgeon opening the body and removing the organs in the presence of a physician and a monk. The primary incision extends from the xiphoid process to the symphysis pubis.

It is of considerable interest that during the early part of the Renaissance, postmortem examinations were performed before anatomic dissection had been instituted. Long explains this presumptive interest in the abnormal by the opinion then prevalent that normal anatomy had been established in the works of Galen.[4] Anatomic dissection had been initiated in southern Italy, and had spread quickly to other parts of the country. It was not until the early part of the fifteenth century that dissections of the human body were made in the Germanic countries. Introduced into Vienna from Italy, the early dissections were conducted under trying conditions, and against considerable opposition.

Until the time of Antonio Benivieni (about 1440-1502), a physician of Florence, autopsies had been performed for medicolegal or religious reasons or to ascertain the cause of epidemics. Benivieni appears to have been the first to request permission from relatives to examine the bodies in obscure cases. A further illustration of this tendency is furnished by Bernard Tornius (about 1452-1497), a physician in Florence. When the son of a high official died, Tornius recommended that an autopsy be performed. His purpose was to discover if the disease was of hereditary character so that he might prescribe more intelligently for the other children in the family.[5]

Contributions to pathologic anatomy in the sixteenth century by means of autopsy and dissection can be found in the works of Vesalius, Eustachius, Paré, and Donatus. A great advance in pathology during this period was made by Schenck von Grafenberg, city physician in Freiburg, who attempted to rid himself

of the prevalent scholastic influence and to develop observation and investigation. In his seven volume work, he compiled the important medical contributions since Hippocrates and included an account of pathologic observations made by himself and his friends.

Autopsies were performed in the seventeenth century by men such as Malpighi, Glisson, and Sylvius. It was during this period that a pathologic-anatomic museum was built by the Pope's personal physician, Riva (1627-1677), who is credited also with the foundation of a pathologic society in Rome.

Of particular interest to us, is the record of the first postmortem examination conducted by white men in North America.[6] This was performed on July 18, 1533, in the town of Santo Domingo on the island of Español (Haiti and Santo Domingo). Female "Siamese twins," joined together from the umbilical region to a point just below the breasts, had died after eight full days of life. The purpose of the examination was to determine whether there were two souls or one, a matter of grave concern to the officiating clergyman. Master-surgeon Johan Camacho performed the examination, solved the spiritual problem, and ignored the cause of death. Another account of an early autopsy in North America can be found in the record of the second voyage of Jacques Cartier up the St. Lawrence river about 1536.[7] During this expedition his men suffered from scurvy, and in their desperation turned to postmortem examination to find the cause of the strange disease. "That day Philip Rougemont, borne in Amboise, died, being 22 yeeres olde, and because the sicknesse was to us unknowen, our Captaine caused him to be ripped to see if by any meanes possible we might know what it was, and so seeke meanes to save and preserve the rest of the company." There is a record of an autopsy performed in 1639 in Salem, Massachusetts. During the next few decades, a number of examinations were conducted in the United States, mainly for medico-legal reasons.

The eighteenth century witnessed constant advance in pathologic observations. We shall mention only Morgagni (1682-1771), whose great work on the *Seats and Causes of Disease,*