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CAMPBELL'S

坎贝尔骨科手术学

（第9版）

Operative Orthopaedics

Edited by

S.TERRY CANALE

第 2 卷 • VOLUME TWO

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S. TERRY CANALE, MD

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Operative Orthopaedics

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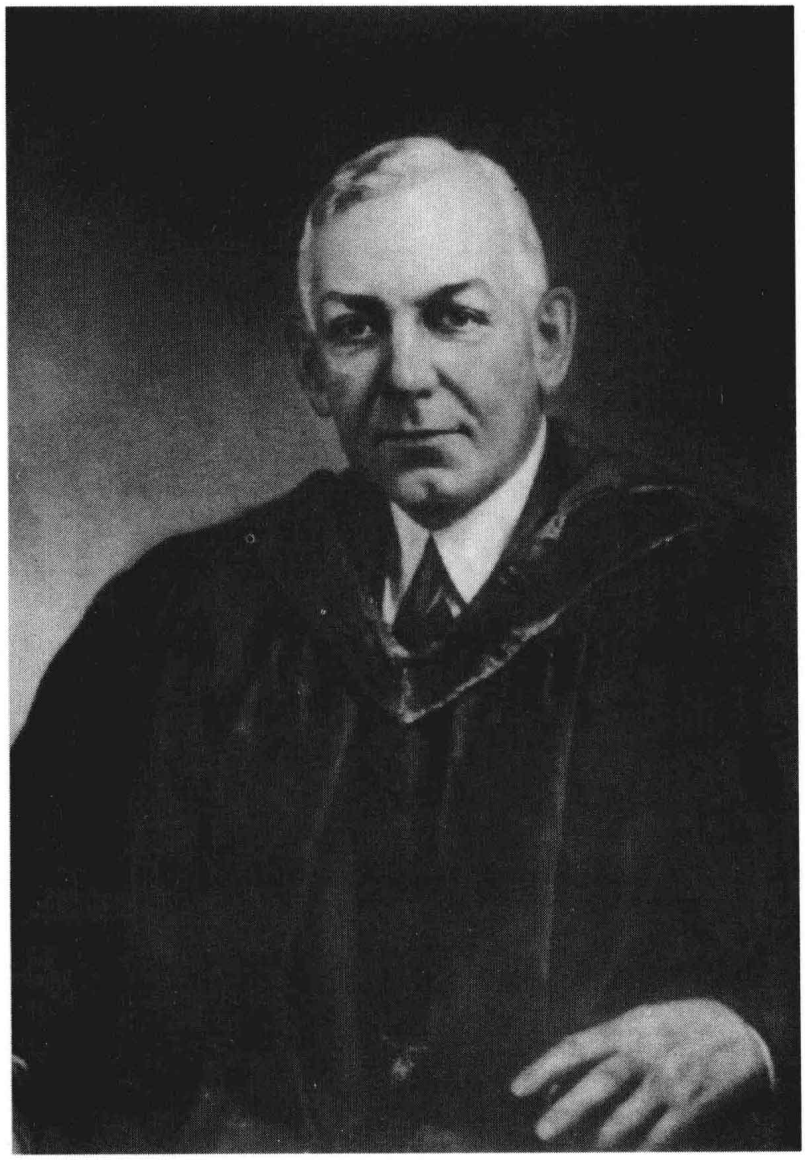

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1880-1941

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Preface

In the 6 years since the last edition of this text, numerous procedures, techniques, and instruments used in orthopaedic surgery have been developed or modified. Those that we have found beneficial or promising are included in this edition, while older, seldom-used techniques have been omitted. Because of the effect magnetic resonance imaging has had on orthopaedic surgery, a new chapter has been added to this edition, as has a chapter on pediatric cervical spine. Approximately 3000 new illustrations are included in this edition. In an effort to make the text easier to use, chapters have been rearranged in 16 sections in 4 volumes. For the first time a second color has been added to the text to emphasize important elements.

A work of this magnitude required the cooperation and dedication of a large group of people, foremost of which are the contributors, who worked diligently to meet demanding deadlines in the midst of their already busy schedules. I am most appreciative of their efforts.

I wish to especially thank Kay Daugherty, our medical editor at The Campbell Clinic, and Linda Jones, assistant editor, for their assistance with manuscript preparation. Without their help, this edition would not have been possible. I also wish to thank Joan Crowson, our librarian, for her assistance with research and references. My thanks also to Barry Burns, Art Director, and artists Sarah Crenshaw McQueen, Richard Fritzler, Lee Danley, Joel Herring, and Cindy Scott for their artwork in this text. Finally, I wish to thank the staff at Mosby–Year Book—Bob Hurley, Kathy Falk, Robin Sutter, and John Casey—for their expert guidance and encouragement.

S. Terry Canale, M.D.

Preface to First Edition

The title of this book, *Operative Orthopedics,* is not intended to convey the impression that the chief or most important method of treatment of orthopaedic affections is open surgery. Although many orthopaedic affections are best treated by operative measures alone, the majority are successfully treated by more conservative means. Further, such measures are often essential adjuncts either before or after operation.

This volume has been written to meet the current need for a comprehensive work on operative orthopedics, not only for the specialist, but also for many industrial and general surgeons who are doing excellent work in some branches of orthopedic surgery, and are making valuable contributions to this field.

The evolution of orthopedic surgery has been exceedingly slow as compared to that of surgery in general. Not until aseptic technic had been materially refined was surgery of the bones and joints feasible. The statement is often made that the World War afforded the experience which made possible the rapid development or orthopedic surgery during the past two decades. The surgery of the war, however, was chiefly the surgery of sepsis; there was little of the refined asepsis which is required in reconstruction surgery. Undoubtedly, the demonstration during the war of the necessity and importance of this field led many able men to specialize in orthopedics, and to them considerable credit is due for its subsequent progress.

No classification of orthopedic affections is entirely satisfactory; consequently, any arrangement of operative procedures is subject to similar criticism. With the exception of the chapters on Arthroplasty and Arthrodesis, operations described in this text are grouped together according to their applicability to a given affection. This involves less repetition as to generalities of etiology, pathology, and treatment than would be necessary in a classification according to anatomic location. Operative procedures appropriate to two or more affections are described in the discussion of the one wherein they are most commonly employed.

To overcome the too widespread conception of orthopedic surgery as a purely mechanical equation, an effort is made in the first chapter of this book to correlate the mechanical, surgical, and physiologic principles of orthopedic practice, and throughout the book to emphasize the practical application of these physiologic principles. A special chapter has been written on surgical technic, for the purpose of stressing certain details in preparation and aftertreatment which vary to some extent from those described in works on general surgery. A thorough knowledge of these phases of treatment is a requisite to success. To avoid constant repetition, chapters have been included on apparatus and on surgical approaches; repeated reference is made to these chapters. The aftertreatment is given in detail for practically all operative technics. This is a most essential, yet too often neglected, factor in the success of any surgical treatment.

In giving the position or range of motion of a joint, only one system has been followed: with the exception of the ankle and wrist, the joint is in neutral position when parallel with the long axis of the body in the anteroposterior and lateral planes. As the joint proceeds from the neutral position in any direction, the number of degrees in which such movement is recorded decreases progressively from 180 to 170, 160, and so on, to the anatomic limit of motion in that particular direction. To illustrate, complete extension of the knee is 180 degrees; when the joint is flexed 30 degrees, the position is recorded as the angle formed between the component parts of the joint, i.e., the leg and thigh, or 150 degrees. Flexion to a right angle is 90 degrees, and full flexion 30 degrees. In the wrist, the joint is at 180 degrees, or in the neutral position, when midway between supination and pronation, and flexion and extension. In the ankle joint, motion is recorded as follows: the extreme of dorsiflexion, 75 degrees; right angle, 90 degrees; and the extreme of plantar flexion, 140 degrees.

In some instances, the exact end results have been given, to the best of our knowledge. So many factors are involved in any one condition, that a survey of end results can be of only questionable value unless the minute details of each case are considered. Following arthroplasty of the knee, for example, one must consider the etiology, pathology, position of the ankylosed joint, the structure of the bones comprising the joint, the distribution of the ankylosis, and the age of the patient, in estimating the end result in each case. Further, a true survey should include the results of *all* patients treated over a period of *many* years, and should be made by the surgeon himself, rather than by a group of assistants, or by correspondence.

In our private clinic and the hospitals with which we are associated, a sufficient amount of material on every phase of orthopedic surgery has been accumulated during the past twenty years or more to justify an evaluation of the various procedures. From this personal experience, we also feel that definite conclusions may be drawn in regard to the indications, contraindications, complications, and other considerations entering into orthopedic treatment. In all surgical cases, mature judgment is required for the selection of the most appropriate procedure. With this in mind, the technics which have proved most efficient in the author's experience have been given preference in the text. In addition, after a comprehensive search of the literature, operative measures have been selected which in the judgment of the author are most practicable.

Although no attempt has been made to produce an atlas of orthopedic surgery, an effort has been made to describe those procedures which conform to mechanical and physiologic principles and will meet all individual requirements. In any work of this nature, there are sins of omission; also, many surgeons in the same field may arrive independently at the same conclusions and devise identical procedures. We have endeavored, however, to give credit where credit was due. If there are errors, correction will gladly be made. In some of the chapters we have drawn heavily from authoritative articles on special subjects; the author gratefully acknowledges his indebtedness for this material. He also wishes to thank those authors who have so graciously granted permission for the reproduction of original drawings.

In conclusion, I cannot too deeply express my sincere appreciation and gratitude to my associate, Dr. Hugh Smith, who has untiringly and most efficiently devoted practically all of his time during the past two years to collaboration with me in the compilation and preparation of material, which alone has made this work possible. I also desire to express appreciation to Dr. J.S. Speed for his collaboration on the sections on Spastic Cerebral Paralysis and Peripheral Nerve Injuries to Dr. Harold Boyd for anatomic dissections verifying all surgical approaches described, and for his assistance in preparing the chapter on this subject; to Dr. Don Slocum for his aid in the preparation of the chapter on Physiology and Pathology; to Mrs. Allene Jefferson for her efficient editorial services, and to Mr. Ivan Summers and Mr. Charles Ingram for their excellent illustrations.

Willis C. Campbell
1939

CAMPBELL'S

Operative Orthopaedics

PART

IX

Sports Medicine

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