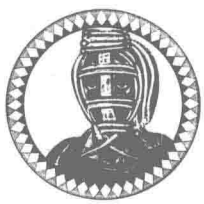
SURGERY OF FACIAL FRACTURES



REED O. DINGMAN, A.B., D.D.S., M.S., M.D.
Assistant Professor of Surgery, University of Michigan Medical School. Associate Professor of Dentistry (Oral Surgery), University of Michigan School of Dentistry. Chief of the Department of Plastic Surgery, St. Joseph Mercy Hospital, and Staff Surgeon, University Hospital and Veterans Administration Hospital, Ann Arbor, Michigan.

PAUL NATVIG, B.A., D.D.S., M.D.
Assistant Clinical Professor of Plastic and Reconstructive Surgery, Marquette University School of Medicine. Staff Surgeon, Milwaukee Hospital, Milwaukee Children's Hospital, Milwaukee County General Hospital, and St. Mary's Hospital, Milwaukee, Wisconsin.

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Surgery of Facial Fractures

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PERIKEPHALEA

illustration from a medieval copy of a Greek scroll

Perikephalea (περικεφαλέα), a "casque," was the term used to describe bandages of the face and head. The illustration shows the position of a properly applied long bandage. The bandage was applied over an ointment and covered both the head and the face. From the chin the two ends were carried across opposite sides of the face, with several turns, to the back of the head and then to the top of the head, where many turns were made. Then the ends were carried downward across each cheek to be crossed beneath the chin, carried beneath the arm pits, and secured between the shoulder blades in back. It seems evident that this strikingly complex bandage was used in the treatment of fractures and injuries of the face and head. This beautiful illustration from a medieval copy of a Greek scroll has been attributed by Garrison to Niketas (ca. 900 A.D.); it could also have come from a manuscript of Soranus about 800 years earlier. The spiritual, melancholy appearance of the eyes, so familiar in countless Byzantine icons, and the graceful and delicate depiction of the folds of the garment suggest that the illustration was drawn by a Byzantine artist rather than by the compiler of the book. The text is generally Hippocratic. The excellent cursive (except in the superscription, which appears to have been done by another hand) confirms the tenth century dating of the manuscript.

G. KASTEN TALLMADGE, A.M., M.D., Ph.D.
Professor and Director of the Department of the History of Medicine, Marquette University School of Medicine, Milwaukee, Wisconsin.

FOREWORD BY

CHARLES G. CHILD, III, A.B., M.D.
Professor of Surgery and Chairman of the Department of Surgery, University of Michigan Medical School, Ann Arbor, Michigan.

ILLUSTRATIONS

ROBERT H. ALBERTIN, B.F.A., M.A.
Assistant Professor and Director, Division of Medical Illustration, Marquette University School of Medicine, Milwaukee, Wisconsin.

FOREWORD

In search of perfection, the science of surgery is certain to continue to reflect greater and greater specialization. The time has passed when one surgeon could pretend to master every competence of his craft. Today, as each surgeon pursues his special interests, he moves from the general to the specific, inevitably developing and thereby providing a whole new body of surgical knowledge. His work may be original, but often it represents a resynthesis of old facts and principles in new form and in new usefulness.

Two world wars, great advances in sciences basic to human health and disease, and rapid changes in the socioeconomic environment have stimulated surgery to incredible expansion. Today, achievements in support of human life which were unthought of not very many years ago, are commonplace. To display this new knowledge widely, books on special surgical subjects have appeared in great numbers. These, the oldest but still the newest and most reliable of teaching machines, mirror breadth and depth in surgery's contribution to alleviating an ever-increasing number of man's ills.

This text by Doctors Dingman and Natvig encompasses past and present knowledge of facial injuries. It clearly points the way toward a better understanding of one of surgery's most humanitarian accomplishments: the mending of fractured faces. The book is also a lively tribute to specialization in pursuit of progress and excellence.

In both these dimensions—progress and excellence—this volume has great significance for surgery and for surgeons. Even in periods of specialization there are beginners: medical students, interns, residents, practitioners, and specialists. As these learn, so must they teach and be taught. For them, the authors of this book on the surgery of facial fractures have captured the past with charm and the present with vigor. Guides are abundantly available for teaching and learning principles, for practicing applications, and for achieving competence.

Although men and women may be known by their deeds, they are recognized by their faces.

> The human features and countenance, although composed of but some ten parts or little more, are so fashioned that among so many thousands of men there are no two in existence who cannot be distinguished from one another.
>
> Pliny the Elder

The authors' enthusiasm for their science is infectious, and their skill in their art is unchallenged. Their ability to teach their skills by word and by picture is limited only by their students' capacity and motivation to learn. In these times of acceleration, deceleration, and dashboards, students, teachers, practitioners, and patients are greatly in their debt.

Professor of Surgery and
Chairman of the Department,
University of Michigan Medical School

PREFACE

In our time a torrent of technological advances has accelerated productivity, but this acceleration has proved to be not an unmixed blessing. Together with increases in the number of machines—automotive and otherwise—and in the rates at which they operate, it has brought new and different and difficult problems to Medicine. Far from the least of these is the alarmingly persistent increase in the incidence of injuries to the face. And this increase concerns a branch of medical practice which must be of high importance to all physicians and to some dentists, and of the highest importance to plastic surgeons, to otolaryngologists, to ophthalmologists, and to general and orthopedic surgeons.

Our book recognizes these important developments and is intended to provide for our colleagues a definitive illustrated work concerned with the contemporary management of fractures of the face. In the treatment of such fractures, this book is intended to fill the need for a concise and accurate description of the technique of internal fixation by wiring.

The technique of wiring, made popular about 1940 by Dr. William Milton Adams, lends itself admirably to the attainment of the accuracy required for its purpose: to return the patient swiftly to his normal functional state and to active participation in the life of his community.

But these purposes must be achieved with the fewest possible psychological complications. The face is the key to recognition, the center of attention, and no one's psyche is more severely injured as a result of trauma than is his whose face is disfigured. If the purpose of treatment is the restoration of normal anatomic relations and normal function—both of which include the restoration of functional dental occlusion—it is no less the restoration of the symmetry and intrinsic beauty of the features.

Our book, then, explains and demonstrates (as far as description and profuse illustration can explain and demonstrate) the manners in which these purposes can be achieved by combining internal fixation by wiring with intermaxillary fixation. This combination of procedures has proved to be eminently successful in our management of many cases.

Our colleagues will notice that we have not described or illustrated other methods of treatment: these—using multiple bandage-like splints, plaster head-caps, complex metallic frames, and other external appli-

ances—are familiar to all. It would be of small consequence for us to elaborate new descriptions of these cumbersome methods.

We have divided several of the chapters in this book into two parts for the sake of clarity in presentation. In such chapters, part I is a discussion of the problems involved and part II is an illustrated, step-by-step description of the surgical procedure.

ACKNOWLEDGMENTS

We are happy to acknowledge our debt of gratitude to our friend, Dr. G. Kasten Tallmadge, who by his scholarship, wisdom, and judgment made such excellent additions to our volume. We are deeply appreciative of the many hours and days he contributed in preparation and reading of the manuscript.

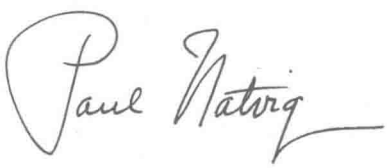
In great measure the stimulation for preparation of this book was initiated by our learned colleague and teacher, Dr. Harry Sicher. His valuable suggestions, his constructive criticism, and the many hours devoted to the reading of the text have contributed much to this work.

We thank Mr. Robert H. Albertin and Miss Jean Moberg for the beautiful art renderings and illustrations.

We are grateful to the staff of the W. B. Saunders Company for their excellent advice and counsel concerning many technical problems of production.

Mr. Joseph Stodolo, Jr., has been patient and helpful in preparation and reading of the text.

The help and consideration of these others have done much to make this book possible: Dr. Donald P. Bobbitt, Miss Frances Beckwith, Mrs. Mary-Ann Brichta, Mr. C. Roland Burd, Mr. Ralph S. Cavan, Dr. Charles G. Child, III, Dr. J. C. Devine, Dr. Christopher R. Dix, Dr. Edwin H. Ellison, Dr. Sherwood W. Gorens, Dr. James R. Hayward, Mr. Gerald P. Hodge, Dr. Robert H. Ivy, Miss Ellen Johnson, Dr. Arthur C. Kissling, Jr., Mr. Anthony M. Kuzma, Dr. Richard H. Lillie, Dr. Jerome L. Marks, Dr. John K. Olinger, Dr. James A. Schelble, Mrs. Doris Schilling, Miss Ruth Schmidt, Mr. Robert H. Teevan, Mr. George J. Wing, and Dr. Walter Zeit.



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CHAPTER

1

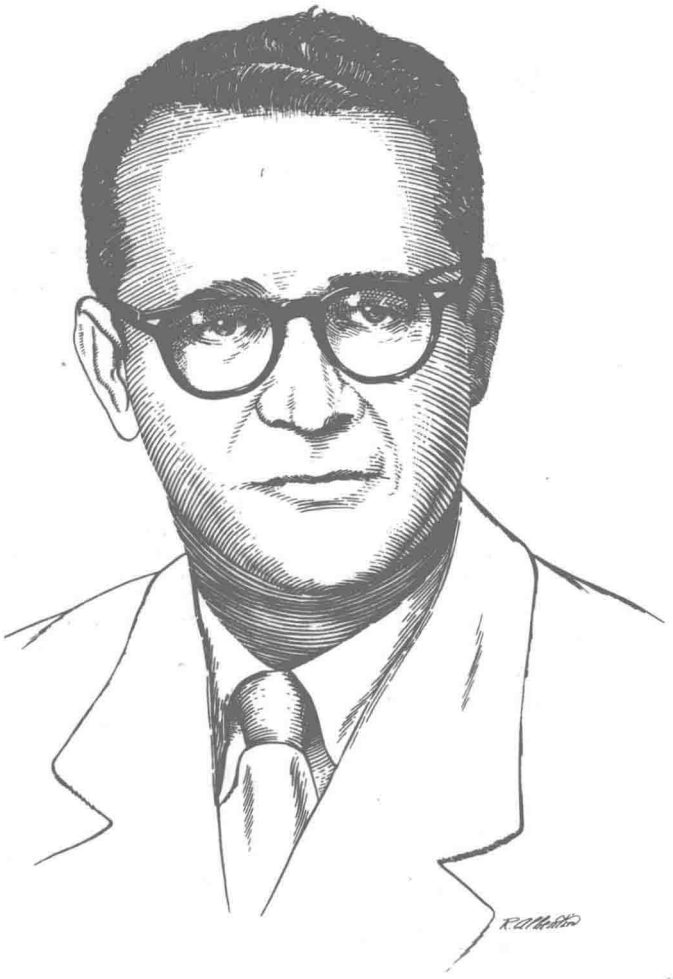
PROFILING THE PIONEERS

It is hoped that the biographical sketches in the following pages will interest all who concern themselves with the treatment of facial fractures. Here are sketched briefly the lives and careers of some of the pioneers who helped to lay the foundations of the modern surgical techniques that are the subjects of this work.

There is no doubt that many others contributed to the advances which we shall be describing. We acknowledge their work with gratitude and admiration. We wish it were possible to include biographies of all of them in this book.

Surveying the lives of these pioneers, we are impressed by an attitude they shared. None ever despaired of the ability of his profession to find, eventually, better methods of treating facial fractures. All had the critical judgment and the courage to recognize that any great progress is the result of many small gains.

In the search for a better way, no new way is necessarily final.



WILLIAM MILTON ADAMS

(1905–1957)

"He is the greatest artist who has embodied, in the sum of his works, the greatest number of the greatest ideas."—John Ruskin

Nineteen hundred and thirty was the year William Milton Adams was graduated from the School of Medicine of Tulane University.

This was the year which initiated a career of concentration, a single dedication to a painstaking search for improved techniques of plastic and reconstructive surgery.

His was a brief career; he died at the age of 52. In the light of his excellent accomplishments, the brevity of his lifespan appears all the more tragic. Today we can only speculate on the achievements that might have come.

In terms of the essential subject of this work —the surgery of facial fractures—his accomplishments are as vital at this moment as they were in his own day.

He was the first to propose the modern technique of treating facial fractures by internal fixation by wire.

Milton Adams' original application of this technique is acknowledged as one of the truly great advances in the field of plastic surgery. Subsequent development by Adams helped popularize the technique, broadened its range of effectiveness, and multiplied its applications.

The accomplishments which have resulted from the great aims of William Milton Adams cannot be listed within the limited borders of a thumbnail biography.

The spirit that moved the man in his relentless search for a better way can best be expressed in the words of the man himself: *"A good surgeon should always be his own severest critic."*

The story of Greene Vardiman Black is the story of an American genius. One is reminded of Arnold's lines on Shakespeare:

But thou who didst the stars and sunbeams know,
Self-school'd, self-scann'd, self-honour'd, self-secure,
Didst walk on earth unguessed at . . .

For when he began his career, he was a self-taught practitioner of dentistry. When he completed his career, he was Dean of the School of Dentistry of Northwestern University and a man of science whose greatness was acknowledged everywhere.

At the beginning of this career, dentistry was hardly more than a crude trade. At its end, dentistry had become a respected scientific profession. To Greene Vardiman Black we owe gratitude for the largest share in the implementation of this evolution.

Not only was he an expert practitioner—we still refer to Black's lines of extension in operative dentistry—but he was also a proficient educator, as is proved by his ranking in Northwestern University.

Again, not only did he improve techniques and apparatus in dentistry, but he published many scientific articles concerned with the more technical problems of his specialty.

These accomplishments were stimulating to most of his students and to many of his colleagues. Thus Black brought to the profession of dentistry that excellence for which the state of Illinois long has been distinguished.

Greene Vardiman Black has been called the Father of Modern Dentistry. He advanced techniques and knowledge in a field which is peculiarly germane to the subjects that are discussed in our book.

Black was the first American to maintain reduction in fractures of the jaw by means of circumferential wiring.

"What's past is prologue."—Shakespeare

GREENE VARDIMAN

BLACK

(1836–1915)

VILRAY PAPIN

BLAIR

(1871–1955)

"Doing easily what others find difficult is talent; doing what is impossible FOR TALENT *is genius."*
—Amiel

The medical profession is hardly given to the thoughtless encomium or exaggerated statement at any level. Thus, there can be little doubt about the true greatness of Vilray Papin Blair—hailed by his colleagues as the man most responsible for raising the standards of plastic surgery in the United States.

An inspired surgical innovator, a man of remarkable organizational genius, Blair was both the instigator and the prime moving force behind the establishment of the American Board of Plastic Surgery. And, having made major contributions toward establishing this specialty, his surgical accomplishments in the treatment of facial injuries, and in other operative procedures as well, helped make plastic surgery ever more valuable in the battle against human ills.

Although he was a descendant of an old and distinguished family of St. Louis, Vilray Papin Blair never was one to let traditions stand in the way of independent action. His approach to life or to science never was hidebound. He was imbued with the investigative spirit of the "Renaissance Man." In keeping with this spirit, he was immensely articulate and was a writer of unusual eloquence.

Vilray Blair was graduated in 1893 from the St. Louis Medical College, now extinct. His first teaching position was that of instructor in practical anatomy at Washington University, a position which supplied a valuable foundation for the highly creative surgical procedures that made him famous.

During World War I he was Head of the Section of Oral and Plastic Surgery in the United States Army and then Chief Consultant in Maxillofacial Surgery with the American Expeditionary Forces.

His subsequent career as a surgeon, teacher, and writer was consistently dynamic. The story of his life is epic in its proportions. The guide lines he left for his colleagues will stand for years to come.

An admiring colleague once described James Barrett Brown as "Mr. Plastic Surgery." While discounting its colloquial qualities, the appellation aptly defines the stature of this man and his work. On the basis of performance to date—and without considering the potentialities of his future—the work of Dr. Brown stands as a giant's mark upon the entire field of plastic surgery.

To the authors of this book, one of Dr. Brown's most impressive characteristics is an almost uncanny ability to simplify complex surgical problems. This ability was of infinite value to our nation during World War II, when Barrett Brown served the government's medical services as consultant-coordinator in plastic surgery. By introducing simplified procedures—techniques that made it easier for the clinician to perform effectively under tough wartime conditions—he became the man behind the scenes of thousands of surgical victories.

His war record also demonstrates the man's talent in the communication of ideas. His ability in the clear exposition of medical complexities is shown further in the wide-ranging, standard-setting contributions he has made to the literature of our profession.

Dr. Brown was born in Hannibal, Missouri—a fortuitous circumstance which led to a hobbyist's interest in the life and works of another prominent Hannibalian, Mark Twain. (Dr. Brown's collection of Twain memorabilia is reputed to be one of the finest in the country.)

A graduate of the Washington University School of Medicine in St. Louis, he continues to serve his alma mater as Professor of Clinical Surgery and as Professor of Maxillofacial Surgery at the university's School of Dentistry.

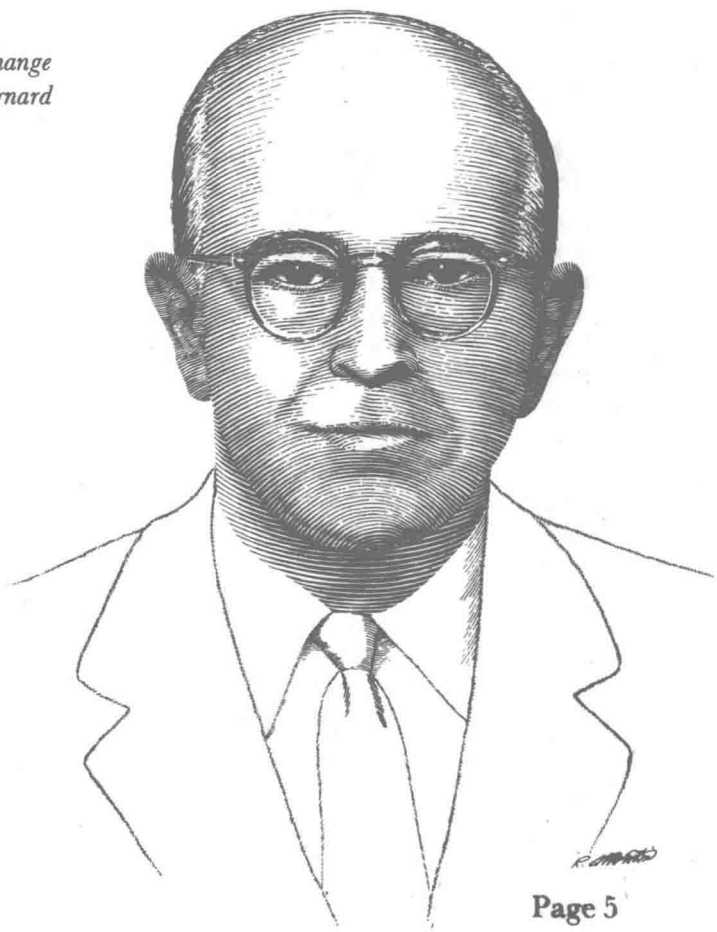
Although he makes Missouri his home, the scope of James Barrett Brown's contributions to medicine are of international significance.

"In science, the thing is to modify and change one's ideas as science advances."—Claude Bernard

JAMES BARRETT

BROWN

(1899-)



JOHN BERNHARDT

ERICH

(1907–)

"Those having torches will pass them on to others."
—Plato

Among the remarkable characteristics of America's medical profession is the capacity to rise to great heights in times of extreme stress—when both the facilities and the trained practitioners of a specialty are in sore danger of becoming overextended. One reason behind this unique capacity is the fortunate presence of men who are able to multiply their own skills . . . *to pass the torches on to others.*

During World War II and the Korean incident no medical specialty was under greater stress than was plastic surgery. To meet the shortage of trained clinicians, many great specialists worked tirelessly to teach their skills to physicians not trained in the specialty.

A leader in this work was John Bernhardt Erich. During the major conflict, some 200 naval medical and dental officers profited by Dr. Erich's ability to teach his skill in the surgical treatment of facial injuries and plastic surgery. They learned valuable lessons from him at the Mayo Clinic to which he, himself a naval medical officer, had been assigned to train others in his specialty.

In addition to these direct beneficiaries of Dr. Erich's teaching, many others gained through study of his book, *Traumatic Injuries of the Facial Bones,* a definitive volume in the writing of which he collaborated with Dr. Louis T. Austin, Director Emeritus of the Mayo Clinic's Section on Dentistry.

John Bernhardt Erich's own basic training started at the University of Illinois in Chicago. In just seven years of study at that institution, from 1926 to 1933, he received the degrees of Bachelor of Science, Doctor of Medicine, Doctor of Dental Surgery, and Master of Science.

In 1933, he entered the Mayo Foundation as a fellow in plastic surgery.

Today, after years of consistent accomplishment, he is head of the Mayo Clinic's Section on Plastic Surgery and also serves his specialty and the medical community as Professor of Plastic Surgery at the Mayo Foundation Graduate School of the University of Minnesota.