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Sturdevant's
Art and Science of
OPERATIVE DENTISTRY

Sixth Edition

Harald O. Heymann
Edward J. Swift, Jr.
André V. Ritter

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Sixth Edition

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This book is dedicated to the continued advancement of operative dentistry.

While working on the new edition, the primary goal of the editors and contributors was to provide a book that is a reliable and trustworthy resource for our students, as well as our teaching and practicing colleagues.

In addition, we dedicate the sixth edition to the editors and contributors who have come before us.

Much of their work can still be found in this edition.

Finally, we dedicate this book to Dr. Clifford Sturdevant, who was a true leader in dental education, and a driving force for the first three editions of this book.

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Foreword

Not long ago I picked up and read Charles Pappas' lively 1983 account of "The Life and Times of G.V. Black."* I rapidly marveled at the scintillating accomplishments of a man whose only dental training comprised a few weeks as an apprentice to a Mount Sterling, Illinois, dentist. Often referred to as the father of Operative Dentistry, Greene Vardiman Black was born in 1836, and opened his first dental practice in 1857, in Winchester, Illinois. Coincident with starting his practice, G.V. Black imposed on himself a rigorous self-education routine, focused primarily on the basic sciences that were emerging and/or developing so impressively during most of the 1800s. Utilizing a few precious hours each evening, after his children had been sent to bed, Black began intensive studies of chemistry, microbiology, and pathology. At that time most of the books and scientific essays available to Black were authored by Europeans, some writing in English, but many in Latin, German, and French. Consequently, Black studied these foreign languages until he was sufficiently proficient to absorb the science he needed in order to advance in his chosen professional and early academic life.

Beginning in the mid-1860s, Black began to apply what he drew from his basic science studies, and started to publish increasingly learned articles about various facets of Dentistry. With his dental experience growing, and his academic capabilities ever more obvious, Black was invited in 1866 to become a founding trustee of the Missouri Dental College, where he subsequently taught from 1870 to 1881. In 1877 Black was awarded an honorary DDS by the Missouri Dental College, and in 1884 he received an honorary MD degree from the Chicago Medical College (later to become Northwestern University Medical School). In 1883 Black had begun to teach at the Chicago College of Dental Surgery as Professor of Dental Pathology and Bacteriology. In 1897, G.V. Black became Dean and Professor of Operative Dentistry, Dental Pathology and Bacteriology at the Northwestern University Dental School, a position he held for 17 years. Black died on August 31, 1915.

Black himself published six books, of which his magnum opus was *Operative Dentistry: Volumes I and II* (1908). Quickly receiving wide acclaim, that work was revised and republished seven times over the period of a half-century. What would G. V. Black say if today he were handed, and asked for comments on, the sixth edition of *Sturdevant's Art and Science of Operative Dentistry*? My guess is that Black would, first of all, express quiet satisfaction that as a science Operative Dentistry has made so much progress that some of the key, enduring principles he enunciated were no longer relevant, having been overtaken by modern science and technology. An example would be Black's famous principle of extension for prevention, a dictum no longer followed because of the improvements in

oral hygiene, fluoride therapy, remineralization formulations, and fissure sealants, that together have greatly reduced the incidence and severity of recurrent caries.

I think that Black would also be pleased that the authors collaborating on *Sturdevant's* sixth edition have retained the impressively comprehensive nature of this textbook. With his own background in microbiology and pathology, Black would have seen as very relevant the extensive coverage devoted to anatomy, histology, physiology, microbiology and cariology within the Operative Dentistry framework. For example, and as is more apparent than ever, modern cariology has become a fast moving field with changing ideas on etiology, detection, measurement, risk assessment, prevention, and treatment of caries. *Sturdevant's* editors and co-authors fully immerse themselves in such topics, and skillfully blend and present the established understandings with the new, emerging scientific developments.

Black was also a student of chemistry and materials science. He carefully studied the chemistry of dental cements, and he shared his findings via many scientific publications. Black conducted numerous studies on amalgams, their composition and properties. These experiments were also written up and published. Because of the central place amalgams held in dental practice a century ago, I think Black would be astounded by the enormous role adhesive resins and various composite restorative materials play today in contemporary Operative Dentistry. The transition from amalgam to non-metallic restorations is far from complete, yet the adhesive dentistry revolution has been accompanied by modifications of G. V. Black's venerable six principles of cavity preparation, as originally codified in 1908. Black would surely think of this as a definitive and welcome sign of dentistry's scientific progress, a goal for which he always advocated.

Black would likely be impressed by the functional and greatly improved esthetic results achievable with the modern composite restorative materials. Yet it is probably safe to assume that Black the scientist would urge even more research to develop still better dental materials with which to treat patients, and thereby improve the public's health. That is the type of challenge the sixth edition of *Sturdevant's Operative Dentistry* has embraced, and represents the type of vision and spirit that guided the major revisions contained within this book.

G.V. Black was a consummate operative dentist, a life-long scientist, and a widely respected teacher. He was aware of the importance of scientific papers and well-illustrated textbooks as critical learning materials for the dental student, and the conscientious practitioner alike. Black would likely, therefore, appreciate and applaud the well organized structure and the up-to-date content of *Sturdevant's* sixth edition. (The first edition appeared in 1968.) It is also likely that after a stellar academic career, G.V. Black would lightly tug on his beard and smile in admiration as his eyes fell on the electronic

*Pappas, C.N. *The Life and Times of G.V. Black*. Quintessence Publishing Co., Chicago, 1983.