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# EMBALMING

HISTORY, THEORY, AND PRACTICE

Fifth Edition

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This edition is dedicated to the staff and personnel of the Air Force Mortuary Affairs Operations at the Charles C. Carson Center for Mortuary Affairs, Dover Air Force Base Port Mortuary. Their commitment continues to ensure dignity, honor, and respect in the care and preparation of those fallen in the service of their country, the United States of America.

And to those special persons who have educated, mentored, challenged, and supported my career in funeral service:

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*Acknowledgments*

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## FOREWORD

This text written initially and edited for four subsequent printings by its primary author, Robert G. Mayer, former instructor at Pittsburgh Institute of Mortuary Science, has proven to be the most comprehensive text, relevant and up to date on the subject of embalming deceased human beings. Following the curriculum guidelines of the American Board of Funeral Service Education, versions of this text are being used in all mortuary schools in America as well as Canada, Japan, Australia, Great Britain, Korea, Ireland, South America and many other international countries supports that.

The thirst for embalming knowledge and skill is overwhelming in international markets. Educators, Tutors and Practitioners in those international markets have demonstrated a profound desire to advance their knowledge and technical skills to the level of American Funeral Directors and Embalmers. The universal use of this text will enhance the technical skills in those markets allowing it to become a reference manual for the Professional Embalmer and the lay reader.

Embalming, as one would expect, is not a subject discussed outside of funeral service circles, However, I personally feel that Embalming should not be taken lightly by the Professional Embalmer. We as practicing Embalmers do Embalm bodies daily. A family experiences a death occasionally and when a family chooses embalming with viewing it should be performed to the best of our ability and *should lessen the ravages of illness and trauma*. The memory picture left with that family following funeral service will be in their minds forever. It may influence whether a service with embalming and viewing would be selected in the event of another death in the family.

Being both humbled and honored to serve as a volunteer embalmer at the Port Mortuary, Dover Air Force Base, Dover DE for a week in July 2008. I spent several hours at the bulletin board reading letters and cards from families of fallen soldiers expressing their gratitude and heartfelt appreciation to the staff under the direction of William Zwicharowski and Matt Genereaux. It was the most heart wrenching time I have ever spent. Throughout that week, more so then ever before, it became crystal clear to me how vitally important it is for families to be able to view their loved ones body. Men and women who studied from and were inspired by this text or others rendered excellent Professional Technical Skills for those families.

Throughout time many Funeral Service Practitioners have given expressions that have been seamlessly integrated into our profession like the Gladstone statement and others. One I particularly like is "You must express grief at the death of a loved one, and then you must go on. The eyes of the deceased must be gently closed and the eyes of the living must be gently opened" (Jan Brugler 1973) That sense of academic awareness present in this text will continue to inspire Funeral Professionals for expressions and the excellent performance of our Technical Skills for years to come.

**John D. Reed, Sr. CFSP-CPC**  
NFDA President 2008/2009

*This book covers embalming as no other book ever has. It is useful as a teaching text and, in that regard, follows the American Board of Funeral Service education curriculum guide on this subject. It is also useful as a historical or technical reference for the funeral service practitioner or the lay reader.*

*Gordon S. Bigelow, PhD*  
*Executive Director*

*This book is a most impressive work. It covers the subject broadly, thoroughly, and with the highest degree of professionalism. It is outstanding in every respect.*

*Eugene C. Ogrodnik  
President and CEO  
Pittsburgh Institute of Mortuary Science  
January 2011*

*You must express your grief at the death of a loved one, and then you must go on. The eyes of the dead must be gently closed and the eyes of the living must be gently opened.*

*Jan Brugler, 1973*

Since its inception in 1987 this textbook project has allowed me the unique opportunity to integrate onto the printed page three segments of my professional life. First, since 1968 I have served funeral homes in the greater Pittsburgh area through my trade embalming service. Second, from 1967 to 1998 I was a full-time faculty member with the Pittsburgh Institute of Mortuary Science and remain there in an adjunct position. Third, for the past 40 years I have participated, both as a presenter and as an attendee, in continuing education programs throughout the United States, England, and Ireland. Thus I have been able to combine theory with current ideas from many individuals along with my hands-on experiences in the preparation room.... It all makes for a very unique mixture.

Nothing is more certain than change. This fifth edition is updated with new techniques, and information relative to the history, theory, and practice of embalming, inclusive of the subjects of restorative art and mortuary cosmetology. Special attention has been given to the creation of a safe working environment – from the standpoint of ergonomics, personal hygiene and safe use of embalming chemicals. Expanded technical areas of the text will assist the embalmer in the preparation of tissue and organ donors and the preparation of the body for viewing without using standard embalming chemicals.

Ron Hast, editor of *Mortuary Management*, has stated, “Embalming is the best known method of presenting a deceased person well throughout the memorial event.” It is incumbent on us not to overstate the purpose and results of embalming as longer terms of preservation. Artistic value coupled with preservation is primary. In time, nature consumes all who die back unto itself. Embalming was once considered a method for the prevention of the spread of virulent diseases amongst the general public. Better understanding of the causative agents, virulence and transmission of disease have demonstrated caution for those who have direct contact with the dead human body, however, only in rare instances and with warning from agencies such as the Centers for Disease Control would the presence of the unembalmed body be considered a health hazard to the general public.

Embalming is a choice. Those we are privileged to serve need to know the values of this process to make intelligent decisions. Consistent, masterful presentation of each decedent entrusted to our care builds positive reputations.

Like many of our long held community traditions – because of cultural, social, political, religious and economic factors – the presence of the embalmed deceased is no longer the central focus of the twenty-first century funeral ceremony, as it had once been in America in the twentieth century. Hence the memorial service, with the absence of the body, has now become as familiar as the funeral service with the body present. Temporary means of preservation are now being requested using refrigeration and wet and dry ice to satisfy the wishes of environmental groups and those with interest in Green and Natural burial. Within funeral service itself, safer chemicals are gradually replacing chemicals long known to be toxic and may very well in time be proven to be carcinogenic to the practitioner.

*Embalming: History, Theory, & Practice*, is designed as a basic textbook for the mortuary science student and as a reference source for the practitioner. Incorporated throughout this work is the American Board of Funeral Service Education: *Embalming Basic Course Content Curriculum and Glossary (2008)* and portions of the *Restorative Art Basic Course Content Curriculum and Glossary (2006)*. The three interdisciplinary mortuary arts and sciences of embalming, restorative art, and mortuary cosmetology are presented in this single volume. Restoration of the body as well as cosmetology

treatments are interdependent with the embalming of the remains. In the words of the noted Chicago embalmer and educator Edward C. Johnson, “restorative art and mortuary cosmetology are simply a continuation of embalming...each is dependent upon good embalming –they are extensions of the process”

It has been stated that the **art** of embalming is the raising of a vessel for injection but the **science** of embalming is knowing which vessel to raise! It has been the foundation of this text from its inception that the dead human body needs to “tell” the practitioner what embalming protocols need to be employed for successful preparation of the remains. The embalming case analysis at the very beginning, during, and following the preparation is the important factor. The embalmer needs to learn to observe, analyze the observation, develop a plan of implementation, and finally observe the obtained results. In the preparation of each body it becomes the responsibility of the embalmer to determine the thoroughness, effectiveness, and quality of the work.

Some things have not changed! Simon Mendelsohn, writing in 1944 on *Embalming Fluids* for Ciba Pharmaceuticals, stated that embalming serves four purposes—it provides time for friends and family to gather with the body present and viewable for ceremonies; it permits the body to be shipped back to a hometown or home country for disposition and viewing if desired; it is a means of sanitizing the deceased; and it can improve the appearance of the deceased following trauma or the effects of disease. These reasons for embalming remain. The very definition of embalming established by the American Board of Funeral Service Education establishes the goals: temporary preservation, sanitation, and restoration of the deceased to an acceptable appearance.

Arterial embalming served the early anatomists –such as Dr. John Hunter (1728–1793). Preservation allowed Hunter and his students to dissect thousands of bodies. His discoveries included collateral circulation, lymphatic system and numerous successful surgical techniques. His embalming and preservative techniques still allow students of the 21st century to study Hunter’s anatomical specimens –housed at the Hunterian Museum in the Royal College of Surgeons, London. An interesting aside is that formaldehyde would not be discovered for almost 75 years after Hunter’s death! Embalming today still allows for anatomical study of the human body.

In America the infancy of arterial embalming was at the time of the Civil War. It allowed the fallen soldier to be transported in a preserved state to home for burial. Arterial embalming today allows the fallen military hero to be transported from a distant foreign field or waters to the hometown often with the possibility of the viewing of the remains. The work done at the Charles C. Carson Center for Mortuary Affairs located at Dover Air Force Base in Dover, Delaware, houses the largest and only Port Mortuary under the United States Department of Defense within the continental United States. There a team of experienced embalmers and mortuary personal perform what could very often be called the miraculous through the use of embalming. Presently William Zwicharowski, a former student of mine, holds the position of Branch Chief of Mortuary Operations.

The writer, poet, funeral director, and embalmer Thomas Lynch says in his book, *Bodies In Motion and At Rest*, “. . . ‘But remembering him the way he was,’ I say, slowly, deliberately as if the listener were breakable, ‘begins by dealing with the way he *is*.’ I’m an apostle of the present tense. After years and years of directing funerals, I’ve come to the conclusion that seeing is the hardest and most helpful part. The truth, even when it hurts, has a healing in it, better than fiction or fantasy. When someone dies, it is not them we fear seeing, it is them **dead**. It is the death. We fear that seeing will be believing.” The science and art that the embalmer employs affords friends and family the opportunity to gather and the opportunity to see the reality by one last comforting look on the face of loved one at their ceremony of farewell. This confrontation with the deceased, for many, begins the process of closure that leads to healing.



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## ACKNOWLEDGMENT

*Embalming: History, Theory and Practice* is a product of the American Board of Funeral Service Education—presently located in St. Joseph, Missouri. This organization is the accrediting agency for the colleges of mortuary science in the United States—currently there are 57 institutions. Working committees of the ABFSE develop and keep current the basic core curricula. ABFSE Executive Directors Dr. Gordon Bigelow, Dr. George Connick and Dr. Michael Smith have all overseen the development and production of this text. Dr. Gretchen L. Warner, present ABFSE Executive Director has seen this edition through the final year of preparation and publication.

During the past 50 years a number of individuals have contributed and encouraged my professional career. The dedication of this book lists some of the most influential. During the preparation of this edition of *Embalming: History, Theory, and Practice* some of those who have encouraged me and in their own way made additions to these printed pages include: Peter J. Ball of High Bentham in the U.K., and David G. Hicks of the Cincinnati College of Mortuary Science and Eugene C. Ogrodnik of the Pittsburgh Institute of Mortuary Science. In particular I am grateful for the preparation skills of David G. Williams, Melissa Johnson, and William Smith, embalmers extraordinaire.

Several organizations have made generous contributions to this text through their continuing education programs—The Dodge Sunshine Seminars (over 50 years in existence); Ohio Embalmers Association (80 years of programming); British Institute of Embalmers and the American Society of Embalmers. Their speakers have kept the embalmer up-to-date on all aspects of embalming topics and developments. They have been most valuable to this author.

This project began with the present primary author/editor in 1987, after being approached by Glenn G. McMillen, a former mortuary school classmate (1962) and past president of the National Funeral Directors Association. The first edition was published in 1990 by Appleton & Lange. Seed moneys and underwriting for the first edition was made possible by The Heritage Club of the National Funeral Directors Association. The National Funeral Directors Association has continued to support this project during the past 22 years.

I am most proud of the Selected Readings portion of this text. In this edition There are 20 in depth articles on a number of subjects relative to embalming and restorative art. Four recent articles are printed in this text for the first time.

The third edition of this text, published in 2000 by McGraw-Hill, combined for the first time in any textbook the subjects of embalming, restorative art, and mortuary cosmetology. These three divisions of the mortuary preparation sciences and arts are also contained in this fifth edition. Contributions on the topic of restorative art has been enhanced by the work of Vernie Fountain and C. Richard Sanders. Fifty-one persons have contributed to this text, in whole or in part. New contributors include, Paul Cimiluca, David G. Hicks, Shun Newbern and Karl Wenzel.

Three readers from the American Board of Funeral Service Education have reviewed the changes made in this edition—Patty S. Hutchison, Alta Williams and Eugene C. Ogrodnik.

Original artwork by Jeffrey C. Pierce of Pittsburgh and Jude Waples of Oakville, Ontario remain in this edition. Transcription work complete by Brockton A. Shaffer, of Clearfield, Pennsylvania. Finally a special thanks must be given to David E. Mahlstedt of Pittsburgh, Pennsylvania for his computer and editing skills, without whose help this edition would not have been possible. Ralph

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Finally, I wish to thank John Reed of Webster Springs, West Virginia for preparing the foreword for this edition. John was a 1971 graduate of the Pittsburgh Institute of Mortuary Science and has served funeral service at the local, state and national levels. He is a past president of the National Funeral Directors Association.

**Robert G. Mayer**  
Pittsburgh, Pennsylvania  
December 2011

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**PART I**  
**THE THEORY AND PRACTICE OF EMBALMING**



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