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Adventures in Heat and Cold

Men and Women Who Made Your Lives Better

by Bernard A. Nagengast
with Randy C. Schrecengost

Adventures in Heat and Cold

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Completed in celebration of ASHRAE's 125th anniversary



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Dedication

This is dedicated to the pioneers of the HVAC&R industry–those well known or lesser known and those unknown, still waiting to be discovered. There are so many interesting stories to be told–all you have to do is look for them!

About the Authors

Bernard A. Nagengast, Member ASHRAE, is an HVAC&R engineer in Sidney, Ohio. He has an associate degree in applied science in air-conditioning technology from Hudson Valley Community College and a bachelor of science degree in environmental engineering, as well as a master's degree in business administration from California Polytechnic State University. Nagengast is a well-known author and lecturer on the history of heating, ventilating, air-conditioning and refrigeration technology, having researched industry history since 1967. He has been a member of ASHRAE since 1968 and has been member, chair, and consultant to ASHRAE's Historical Committee. He is also a member of the Society for the History of Technology and the Society for Industrial Archeology. In this book, Nagengast authored the chapters on Ashley, Audiffren, Boyle, Cooper, Cramer, Galson, Gorrie, Jones, McNary, Sturtevant, Tellier, Voorhees, and West.

Randy C. Schrecengost, PE, CEM, BEAP, CxA, Member ASHRAE, is a senior project manager and principal mechanical engineer with Stanley Consultants in Austin, Texas. He has over 30 years of experience in design and project management at all levels of engineering, energy consulting, and facilities engineering. His emphasis is on mechanical systems, including work with large central plants and industrial facilities for both domestic and international clients. Schrecengost has both bachelor of science and master of engineering degrees in mechanical engineering from Texas A&M University. He has been a member of ASHRAE since 1987, serving on numerous committees, including being chair of the Society's Historical Committee. He is a frequent author and has served on the editorial advisory board for *Consulting-Specifying Engineer* magazine. In this book, Schrecengost authored the chapters on Donnelly, Fanger, Ingels, Kirkwood, and Pennington.

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Preface

The ASHRAE Historical Committee proposed compiling biographical information on men and women who had made substantive contributions to the art and science of the industry ASHRAE serves. The project, part of the celebration of ASHRAE's 125th anniversary, received many suggestions as to the coverage, format, and possible author. I volunteered to write this book because, although other biographical works already existed, they did not go much beyond a brief description of the individual and their contribution. During my 53 years of researching the history of HVAC&R, the interesting backgrounds of industry pioneers struck me. Often their contributions were influenced by the events of their personal lives as well as the socioeconomic and political situations of their time.

So, why not combine the background with the achievement? I began by proposing that the list of pioneers did not have to be restricted to those who were well known but would be limited to those who were deceased for at least five years and to those who have sufficient and accurate biographical and visual material available in order to develop an interesting or unusual story that will grab the reader. The short time span necessitated a smaller list of entries, considering the work required in researching and compiling information and visual material, as well as the actual writing and then production of the book.

This turned out to be an easier-said-than-done project. Although I already had a lot of information from past research, there was still more to discover, particularly since much more information can now be accessed electronically. And the information I already had was in need of reexamination.

ASHRAE already had some biographical programs in place, such as the Hall of Fame, Pioneers of the Industry, and Leadership Voices. Previously published works that contained biographical information

included *A History of Refrigeration Throughout the World*, *Heat & Cold–Mastering the Great Indoors*, *Proclaiming the Truth*, *The Comfort Makers*, and *The Men Who Created Cold*, as well as many serial-published articles. These sources were used as a starting point. A list of possibilities for inclusion was initially researched to see if sufficient information was not only available, but that the individual's background would be unusual and interesting. Those individuals who had interesting stories but already had well-known biographies, such as Willis Carrier, were excluded to make room for lesser-known pioneers. After considering the available information and visual material, as well as the time restraint, the list was reduced to what you see here. Randy Schrecengost, of ASHRAE Historical Committee, volunteered to assist with the project, authoring five of the chapters. His assistance ensured the timely completion of this work.

The individuals presented here were different in many respects, coming from many different backgrounds and times. However, they were homogeneous in one respect–all of them possessed a vision that was pursued with a single-mindedness of purpose, despite their surroundings, relationships, and societies. During their lifetimes, they endured triumphs but also setbacks and even disasters. Some of them achieved recognition and financial rewards during, at the end, or only after their lives. Some of them had little financial success. Some were not appreciated for their contribution for many years after they had passed away. Their stories do show the ultimate triumph of an idea continuously pursued, no matter what. But you also see the conflict of single-mindedness with personal relationships and surrounding society. And there is the role that mentors, supporters, and backers can play in encouragement and promotion of a good idea. Those you will read about here had to balance pursuit of an idea with life as it was. Some did it well, some not so much, but I trust you will find their stories both interesting and inspirational.

Bernard A. Nagengast
September 2019

Acknowledgments

It is not only traditional, but also necessary, to thank those who participated alongside an author in a published work. The simple fact is that no author possesses all of the knowledge, all of the time, and all of the resources to ensure a successful outcome. For this publication, there were many who supported and contributed to my efforts published here.

First, thanks to my wife Carol, I was able to persevere in getting this project done in a limited amount of time. But there was a sacrifice of some family time and some delay in completing household projects. Carol, I do appreciate your patience and understanding.

There are 18 individuals profiled in this book, but that list would have been shorter if Randy Schrecengost had not volunteered to help write some of the biographies. Randy is a good writer and researcher of HVAC&R history, and his contribution was invaluable.

My daughter, Therese, having an artistic talent I simply do not possess, designed the cover of this book.

Stephen Comstock, the Director of Publishing and Education for ASHRAE until recently, has long supported the production of history-related material by ASHRAE. He has been involved with ASHRAE's Historical Committee for almost 45 years, and has always been an inspiration to me.

ASHRAE's publication efforts are now guided by Mark Owen and his staff. This particular project is the responsibility of the Special Publications staff, led by editor Cindy Michaels, with whom it has been a pleasure to work. I have worked with ASHRAE's publishing staff a number of times in the last 50 years, and their friendly, cooperative professionalism has always been the rule, not the exception.

Many, even within ASHRAE and the HVAC&R industry, are not aware that ASHRAE has one of the finest collections of printed historical material in the world. That material's maintenance and accessibility is through the efforts of ASHRAE's professional librarian Emily Sigman, who provided a lot of information for this project, always cheerfully and in a timely manner.

And there were some individuals who provided family details necessary for a complete picture of some of the pioneers profiled here. Family members Anne Ashley, David Ashley, and Helen Staley and Ashley's friend Gerald Groff shared details on Carlyle Ashley, as did Eve Casa on Constance Lane West. Information on Madison Cooper's work with flowers came from Dorothy Stiefel and Kathryn Mohr. Some good material was provided by Edgar Galson on his father, Henry.

As any historian knows, there is much to be discovered in libraries and museums. Although I have accumulated a lot from those sources over the years, I am always looking for more, and found it at the Chicago Historical Society for David Boyle, The Missouri History Museum Library and Research Center for Gardner Voorhees, and the Refrigeration Research Museum for Fred Jones, provided by Jim Nelson. Also, Randy Schrecengost obtained some good information about Rod Kirkwood from the Puget Sound Chapter of ASHRAE.

Although much information came from ASHRAE's library and my own personal library, there was more to be had over the Internet, where digital copies of books and magazines can be downloaded, and biographies and family trees found.

I also extend thanks to any other individuals and institutions who aided me that I may have failed to mention.