



MANUFACTURING THE WEATHER

*The History of Carrier Engineering Company Limited,
London, 1921-70*

Brian Roberts

Other

Carrier

Specialities

Continuous High Temperature Enamelling Process.

Continuous De-greasing Plant.

Spray Booths.

Conveyors for all purposes.

Body Drying Ovens.

Core and Mould Baking Ovens.

Heating, Ventilating and Air Conditioning Plant.

Refrigerating Machinery.

Complete Boiler House Equipment.

Carrier Engineering Company Ltd

24 Buckingham Gate, London.

CEC Catalogue showing range of Engineering Specialities, 1930s [10/569, back cover]

Manufacturing the Weather

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About the Author

Eur Ing Brian Roberts, CEng, FCIBSE, Life Member ASHRAE

Brian Roberts was born and educated in Bristol. He served a student apprenticeship with Brightside Heating & Engineering Company, gained the National College Diploma, then the Associateship. He has been Chief Air Conditioning Engineer for Brightside, Company Chief Engineer for Drake & Scull and Technical Director of Airpower. He has served on the technical committees of the IHVE/CIBSE, HVRA/BSRIA, HVCA, BSI and ASHRAE; has co-authored *Air Conditioning & Ventilation of Buildings*, *Building Services Engineering: a Review of Its Development*, *The Magic of Hot Water*, *Hadens of Trowbridge*; has also written *The Quest for Comfort* for the Centenary of CIBSE, *The Comfort Makers* for ASHRAE, *Building Services Heritage*, *HVCA @ 100*, and authored some 80 technical and heritage papers as well as the *Golden Oldies* and *Times Past* series in the CIBSE and HAC journals respectively. Now retired, Brian Roberts is Chairman of the CIBSE Heritage Group and CIBSE Hon. Librarian. Other interests include art, architecture and the history of the theatre. In 1994, he was awarded the CIBSE Silver Medal.

The title of the book, "Manufacturing the Weather," stems from the use of the advertising phrase and trademark "Manufactured Weather," employed by Carrier, both in the USA and in the UK, to promote air conditioning in the early 1920s.

*THE Thermal Engineer **

*is privileged more than the historian,
theologian, or poet to consider intelligently some of the
great questions of the universe. The nature of the power he
is harnessing calls forth his imaginative powers
Either our world and the universe have a definite end, where
all energy is equalized and therefore must have had a beginning,
where all energy was concentrated at its highest potential, or
else the potential must somehow be restored by an unknown
means. Such a view of the universe, as cyclic and eternal, seems
most rational and probable. Patriotism and interest in the future
should lead us to economies, but economic pressure itself will more
certainly lead us there. The whole trend of future production will be
towards flexibility. The direction of progress must be toward the
unique. The trend in mechanical developments is toward the cyclic
and continuous process Refrigeration will be applied to the
home of the average man as well as that of the wealthy
(and) will bring the benefits of the shore or
mountains to our homes in
summer.*

From Willis Carrier's Presidential Address to the
American Society of Refrigerating Engineers, 5-7th December, 1927
[1/462]

* Both Dr Carrier, and later Archie Heard, tried to promote the term Thermal Engineer to describe a person involved in the science and practice of heating, ventilating, refrigeration and air conditioning. Indeed, it was used by CEC from time to time. However, the term has never been widely adopted.

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INTRODUCTION

Carrier Engineering Company (CEC) was set up in London in 1921 to introduce air conditioning into the United Kingdom. The driving force behind CEC until his death in 1957 was Stanley Groom. He was one of the founders, the Chairman and Managing Director. The rapid success of the business was due in no small measure to the backing and knowledge of Carrier Engineering Corporation, USA, which initially held a 50% interest in the business, and to the influence and reputation of Dr Willis Carrier, the "Father of Air Conditioning."

The growth of firstly industrial air conditioning, and then comfort conditioning, may be attributed to the introduction of Willis Carrier's scientific design methods, the emphasis placed on humidity control, the provision of a Performance Guarantee by CEC, and to the centrifugal water-chilling refrigeration machine, developed by Willis Carrier, manufactured in the States, and imported by CEC into the UK.

CEC's air conditioning operations spread quickly into France, Belgium, Germany and Northern India. But the company also developed other engineering skills. From small beginnings in metal finishing and paint spraying systems, it went on to become a major player in car production all over the world outside of the USA and Canada. In 1932, CEC bought out the American shareholding. In 1936, CEC became a Public Limited Company. The strong technical links with Carrier Corporation continued.

During the 1930s, CEC became a leading specialist in marine air conditioning. It also specialised in industrial high pressure hot water heating systems, and became involved in refuse disposal and salvage plants, tobacco machinery, pressure cooking machines, and introduced Weathermaker unit air conditioners into the country.

During the War, CEC was engaged upon a variety of government projects. Afterwards, the development of air conditioning and metal finishing continued. By the end of the 1960s, the CEC Group comprised six UK subsidiaries and seven overseas members, employing some 2300 engineers and technicians, but in 1970 the Group was acquired by G N Haden in a hostile takeover.

This book tells the story of CEC from 1921 until 1970: its technical prowess, its projects, its people. It tells also of the commercial pressures, the post-war falling out with Carrier USA, and some of the behind-the-scenes conflicts, power struggles and internal politics of an engineering company that enjoyed success for almost fifty years.

The story has been pieced together from the large collection of catalogues, documents and photographs in the CIBSE (Chartered Institution of Building Services Engineers) Heritage Group Collection. The history of Willis Carrier and of the American Carrier Corporation has already been well reported [see under Groups 1-4 in the References].

This would not have been possible without the papers put together by the late J A E (Archie) Heard, who was the first Chairman of the CIBSE Heritage Group. Archie Heard trained with Carrier Engineering Corporation in New Jersey in 1929 and subsequently was based in India, carrying out air conditioning work. Archie saw War service in India, returning to CEC London in 1945. He became acquainted with all sides of the business, becoming Sales Director, then Assistant Managing Director, being appointed Managing Director in 1962. In all he worked 43 years with CEC. He retired from Haden-Carrier in 1972.

Archie Heard left copious notes on his working experiences: his time in India, his meetings with Willis Carrier, on marine air conditioning and absorption refrigeration machine production. He obviously intended to write his autobiography, and possibly a biography of Willis Carrier, as well as a history of CEC. Unfortunately, none of these was completed or published. He did, however, produce a complete draft manuscript on the metal finishing business.

There is no easy way to tell the story of such a complicated business and dealing with events in strict chronological order was found to be impossible. Accordingly, for convenience, the story of CEC has been divided into five parts. Part-1 explains the American Connection. The broad history of CEC forms Part-2. Various facets of the air conditioning side of the business ("Manufacturing the Weather") are given in Part-3, while Metal Finishing is a separate story in Part-4. The Diary of the Take-Over is outlined in Part-5. A listing of various projects and other information is provided in Appendices A to H.

It must be stressed that many of the events described are as recorded by Archie Heard. He had strong views, which he often forcibly expressed, about these events and about the people involved. His written remarks are sometimes complimentary, other times not so. He may have been right; he may have been wrong; but it was the way he saw it.

Finally, the References, broken down into sections, list the contents of the CIBSE Heritage Group Collection. Only a selective portion of the information has been utilised and there is scope for further research and writing on the lasting contributions made by CEC to Manufacturing the Weather.



BMR

Tadworth, Surrey, 2001

This electronic version 2006

*For my late wife Barbara
and for Zoë, David, Jack Christopher & Gemma Louise*

Acknowledgments

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I am particularly indebted to the late Archie Heard, and to Alan Field, for donating Archie Heard's considerable collection of Carrier Engineering Company's catalogues, papers, photographs, personal notes and draft manuscripts to the CIBSE Heritage Group Collection. Without these the book would not have been possible.

I must also thank Monty Kelberman who, nearly forty years ago, gave me numerous catalogues and copies of the *Carrier Weather Vein* magazine from the 1920s, which started me on this trail. Considerable information was obtained from the books and periodicals in the libraries of CIBSE and BSRIA. I owe a special debt to Stephen Loyd, the Librarian at BSRIA, who tracked down many technical articles for me. Helpful contributions were also received from members of the CIBSE Heritage Group, particularly former Vice-Chairman Paul Yunnie and John Barnes.