CARRIER PAPERS

The Weather Vein

June 1921
These are the collected papers of J A E (Archie) Heard, Chairman of the IHVE Archaeology Working Party (forerunner of the CIBSE Heritage Group). There are 3-Ring Folders (VOLUMES) and 4-Box Files (BOXES), including one of photographs. The collection consists mainly of catalogues and documents relating to Willis Carrier, American Carrier Corp, British Carrier Eng, and Drysys (the Carrier car-body paint apparatus company).

There are copies of many of Willis Carrier's technical papers relating to air conditioning and the development of the centrifugal chiller. There are also the published papers and the unpublished papers and book drafts of JAEH, with information on the early days of air conditioning in India, South Africa, for trains and for passenger liners; also details of the Haden take-over of Carrier UK. Included in the collection are historical papers in German and French, photos of installations (particularly the BBC, Langham Place) and early centrifugal and absorption chiller production and installations.

VOL-1


5. Temperatures of Evaporation of Water into Air, W H Carrier & D C Lindsay, presented 1924.


8. The Weather Vein, Organization Number, Vol.6, No.1, 1926, Carrier Eng (photocopy).


12. The Control of Humidity & Temperature as applied to Manufacturing Processes and Human Comfort, paper 324, ASHVE 1929.


17. The Temperatures Of Evaporation of Water into Air, W H Carrier & D C Lindsay, Trans.ASME 1924 (as item 5).


21. Willis Haviland Carrier (CV from Cornell, 19 July 1937).

22. Notes on W H Carrier, Cornell c1936.


24. Copy letter from J O Jackson (Pittsburgh-Des Moines Co) to Margaret Ingels (author WHC blog) re Carrier's work on Cleveland Wind Tunnel, 8 Feb 1950.

25. Copy Carrier memo from Margaret Ingels, 13 Feb 1950 re (24).

26. Copy letter from Willis Carrier (with signature) to Dr Kleir recalling their collaborative efforts in the 1920s and 30s, dated 17 April 1947.

27. Collection of press cuttings re WHC from Cornell.


29. American Developments in Air Conditioning and Refrigeration during the Last Decade, typescript by WHC, c1945.


34. The Air Conditioning of Khasbagh Palace, JAE Heard recollections from 1931.

35. Stories of Willis Haviland Carrier, collected anecdotes of his eccentricity by JAEH with 1947 poem by Dr Klein.


37. Letter re WHC in Japan (1929) from Matsujiro Nakagawa to JAEH, 1 Dec 1975.

38. List of Carrier Centrifugals installed in UK from 1926 to c early 1930s.

39. Copy of letter from WHC to Dr Klein, 17 Apr 1947 (as 26).

40. Letter from Dr Klein to JAEH re WHC, 20 Apr 1976.

41. Christmas Card from Matsujiro Nakagawara to JAEH c1975?

42. Carrier 50, brochure for 50 years of Carrier UK (1921-71).

43. Air Conditioning for the Confectionery Manufacturer, Carrier UK Brochure, undated probably c1928.

44. Carrier Tobacco Ordering Machine, Carrier UK Brochure, undated probably c1930.

45. Carrier Incinerators, Carrier UK Brochure, prob. c1935?.

46. Noise Smoke Dust, Carrier UK brochure, undated c 1940?

47. Manufactured Weather Guarantees Uniform Temperatures and humidity, Carrier UK brochure, undated, late 1920s?

48. Introduction to the Carrier System of Air Conditioning for British Textile Mills, Carrier UK brochure, c1925?


50. Carrier Eng Co Ltd brochure (list of installations) c1938.

52. Industrial Paint Baking by Infr-Red Radiation, Carrier UK brochure, Jan 1943.

53. Rotodip, Carrier UK brochure (car finishing) c1950.

54. First Principles of Manufactured Weather, Carrier UK brochure (reprint from Weather Vein, 1922).

55. The Carrier Psychrometric Chart, Carrier UK, c1925.

56. Carrier Continuous Pressure Cooking Machine, UK c1930?

57. Manufactured Weather to make Every day a good day, Carrier UK version of USA Publ. mid-1920s.

58. Carrier Dehumidifying Equipment, UK brochure (orig USA 1920).

59. Ventilation for the Modern Store, Carrier UK brochure, prob. 1920s.

60. The Pneumafil System, Carrier cleaner & broken end collector for ring spinning frames (textiles)(Pneumafil =Luwa patent).

**TRAINS**

61. Train Air Conditioning, typescript by JAEH, 1980s?

62. Air Conditioned Carriages of the North Western Railway (India), May 1940.

63. Stones of Deptford (History).

64. The Development of Railway Air Conditioning, A H Chilton, 1951.

65. The Royal Trains, C Hamilton Ellis (extract), 1975.

66. Co-operation in Sales (India Railways), W J Ruston, c1950?

67. India's New Fully Air Conditioned Trains, c1950?

68. Air Conditioned Rail Travel in Australia, c1950?

69. The Egyptian Royal Train, C E P Hall, c1952.

70. Air Conditioning for the Emperor (haile Selassie of Ethiopia) -Royal Train, c1950.

71. One for the Road, Stone-Carrier Air Conditioning, c1950 (Road Coaches)

MARINE VENTILATION & AIR CONDITIONING

73. Ships Lungs, typescript by JAEH on history of ships ventilation, c1979.

74. Ships Lungs, by JAEH in Haden magazine.

75. Ships Lungs by JAEH, CIBSE chronological listing of history of ship ventilation (with bibliography), July 1977.


79. Illustration of Stephen Hales Ships Lung of 1740.

80. Illustrations of Ventilation of Merchant Steamers, J Webb.

81. Table of Centrifugal Refrigerating Machines on Shipboard (period 1935-1947) from HPAC.


83. Typed extract from Marinair lecture to IHVE, JAEH & D Gilbert (given on board Orsova).

84. JAEH handwritten notes from A History of Marine Engineering, J Guthrie (Hutchinson).

85. Personal Notes by JAEH, on ship work and Carrier projects with 1938 Carrier letter to Winsor Eng.

86. Launch of a Quenee, part 1, typescript by JAEH on QE2 (1967)

87. The Air Conditioning of A Queen, part 11, typescript by JAEH on QE2 (from 1968).


MARINE VENTILATION & AIR CONDITIONING continued


92. Collection of drawings from The Ventilation of Ships, booklet by Winsor Eng, with additional Carrier drawings of 1970.


94. Historical Events Leading up to Modern Refrigeration, typed list, covers from 1685.

95. Plank's list - events in history of refrigeration, 1660-1944 (compiled by N S Billington).


98. Carrier Absorption Refrigeration Machine, JAEH typescript. (refer to photographs in BOX-4).


100. Obituary, Dr Willis H Carrier, 1876-1950 from Trans.ASHVE (1950/51?).


5. J Irvine Lyle (initially Gen Mgr, Carrier NY), documentation from University of Kentucky.


8. Logan Lewis (one of Carrier Corp founders), accession list, Cornell.


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Photocopies of Willis Carrier photographs held at Cornell.


11. Profile left side.

12. Full face.

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13. Photo of seven founders of Carrier Corp.

14. Photo, Willis Carrier with visiting engineers at Syracuse HQ, from Carrier Int News, prob.c1939.

15. Photo, Willis Carrier with original centrifugal at Smithsonian in 1946, BSE Mar 1977.


18. Photo, Carrier Training Class 1929 (includes JAEH), Carrier Courier, July 1957.

19. Chronological Table of Events which led to Modern Air Conditioning, JAEH typescript.

20. Points re Carrier arising from discussion with Herman Seid on 31 May 1978, JAEH typescript.

SOUTH AFRICA


26. Letter from Robert Caldwell to JAEH, 6-1-72.

27. Brief Outline of CEC Commercial Progress, 1921-75, typescript by JAEH.

28. Then and Now - The Birth of Air Conditioning, typescript by JAEH.


30. Television Studios Create Development in Air Conditioning Distribution, JAEH typescript, c1970 (with diagrams).

31. Anecdote on Willis Carrier by C L Sainty (Chief Eng, Carrier, London).

32. History of Carrier Eng & Progress of Air Conditioning in the UK, JAEH typescript.
1. The Carrier-York Heat-Diffusing Unit, Catalogue Carrier-Ross, undated (probably 1930s -Carrier Ross was founded 1929).

2. An Air Conditioning Achievement by Carrier -Manufactured Weather for Broadcasting House, brochure c1932. (see photographs in BOX-4).


4. The Romance of Air Conditioning, Logan Lewis, Carrier booklet (originally written c1950).


7. Indoor Air by Carrier, UK brochure, mid-1930s.


9. Carrier Equipment for Bonderizing, UK catalogue, 1930s?


11. Carrier is the Answer to Your Finishing Problems, brochure 1930s

12. Metro Cinema -Inaugural Programme (Carrier installation), Bombay, 8 June 1938.

13. Carrier-Volkart, Times of India advertising, 1941.


21. Carrier Painting and Drying Equipment, label; and Carrier Air Conditioning and Drying Equipment Patented, label.

22. Carrier Corp HQ, Syracuse (3 postcards).

23. Carrier Centrifugal Compressor: handwritten capacity and selection calculations from 1946.


25. Dr Willis Carrier: The Man and his Message, JAEH book draft in 12 chapters (similar item 18), in ring folder.

26. Air Conditioning in India, collection of JAEH notes and drawings in folder; experiences of 1930s.

27. Air Conditioning of the BBC Television Centre, JAEH, JIHVE, Feb 1963.


PHOTOGRAPHS


3. ibid.


5. As 1.

6. As 1.

7. Carrier Installation, USA. 3-Temperature Recorders, Resistance System by Leeds & Northrup, Philadelphia. LH label refers to "Farmers Floor".

CARRIER CENTRIFUGAL PRODUCTION LINE, USA prob. c1925.

8. Assembly Bay.


10. Assembly of Heat Exchangers (condenser plus evaporator).

11. Heat Exchanger (expanding tubes?).

12. Impeller Casing, Bottom Half (5-stage machine).

13. ibid.


CENTRIFUGAL TEST BED, UK FACTORY, prob. c1930.
Note English Electric motor and Drive-Coupling Base marked Carrier Engineering Company Ltd.

15. Test Bed.

16. ibid.

17. Drive Coupling Casing, cover removed.

18. ibid.


21. ibid.

22. ibid, Air Handling Plant,
PHOTOGRAPHS

BOUND FOLDER SHOWING INSTALLATION AT BBC LANGHAM PLACE, c1930.

23. Air Handling Plant with washer.
24. ibid with switchboard.
25. ibid, washer.
26. ibid, fan.
27. ibid, inside fan chamber.
28. ibid, fan belt drive (no guard).
29. Ducting/piping.
30. Carrier Control Panel. Gauge dials read lbs per sq inch compressed air controls: Main Heater, Main Dampers, Air Dewpoint, Steam Preheater, Minimum Heat, Minimum Dampers, Steam Minimum Heater and Steam Main Heater; Centre is Negretti & Zambra multipoint temperature indicator.
32. Exhaust fans?
33. Fan drives.
34. Builderswork Chamber.
35. Starter Control Panel.
36. Roof Exhaust Fans.
37. Roof Fans.
38. Centrifugal chiller.
39. ibid, with control board.
40. Water Tank.
41. Two Steam Boilers with Clyde oil-burners.
42. Pumps and Calorifier.
43. Piping Headers and Valve Stations.
44. Air Compressors and Receiver?
45. External Roof Plant.
BOUND FOLDER SHOWING DEVELOPMENT OF ABSORPTION CHILLERS
BY CARRIER UK with descriptions/notes by JAEH.

46. Lyons, Greenford, 150 TR, c1950.
47. Completed machine in factory, 150 TR.
48. Mars Slough, 150 TR.
49. Lyons, Greenford, 150 TR.
50. Production line, Wembley; Type 16JA Chillers.
51. James Pascall, Mitcham; 2-16 B5 machines, 1951.
52. Wembley factory, reaming end plates.
53. Carrier House plantroom. 16E 113 machine.
54. ibid.
55. Production line, 2 x 150 TR machines.
56. ibid, 1 x 150 TR machine.

Folder also contains documents:

57. Absorption Development, UK by JAEH.
58. Historical Outline, JAEH.
59. A New Development in Absorption Refrigeration,
A A Berestneff, Refig Eng, June 1949.
60. Combination Centrifugal/Absorption May Save Dollars,
61. Preliminary Information on the Absorption Machine,
Carrier technical notes, 6-12-1946.
62. Listing of Absorption Machines manufactured in Britain.
PHOTOGRAPHS

WARNER THEATRE, Leicester Sq, London.

63, 64, 65, 66. Air Plant Rooms, Fans.

67, 68. External view Theatre, c1938/9 (based on film).

WRIGLEY FACTORY, London, c1926.

69. External view.

70, 71, 72. Internal views.

73. Cambridge Theatre, London; Air Plant & Controls.

74. SS Victoria, Air Plant on Deck, 1930.

75. SS Victoria, Dining Saloon, c1930.

76. QE2 on sea trials, 1968.

CARRIER CORP, USA.

77. Training School, Group Photo, Class of 1929 (named), with JA EH.

78. Group photo, employees. Willis Carrier in front row. prob. 1930s

79. ibid (different group), again with WHC.


81. ibid.

82. BBC White City Television Centre, Studio-3, 1960.

83. Acton R&D, airflow tests (smoke trials) in spraybooth.

84. Bengal Council Chamber, Calcutta; Refrigeration Plant Room prob. c1940.

85. ibid, showing fan.

86. Centrifual chiller installation, date/place unknown, prob. 1930s believed London marked MOA?).
Heritage items, originally from JAEH, amalgamated into this Collection.

PHOTOGRAPHS OF CARRIER INSTALLATIONS IN UK

A. County Hall, Council Chamber, London, 1929.
C. Broadcasting House, Langham Place, London, centrifugal c1930.
E. Courtaulds of Leigh, Bedford Mill, weaving shed, dampers c1940.
F. J A Pattreix Ltd, Tobacco Factory, dehumidifying plant, c1945.
G. ibid, ductwork in factory.
H. Sir Joseph Causton, Eastleigh, printing works, inside factory, 1942/5.
I. ibid.
J. ICI, Trafford Park, Manchester, penicillin plant incubator, 1942/5.
K. Glaxo Laboratories, air conditioned cabinet for tabletting pencillin, c1942/5.
L. ibid.
M. Burroughs Wellcome, Dartford, penicillin plant, 1942/5.
N. ibid.
R. ibid.
S. ibid, Rhodes No.1 Mill, Middleton, Lancs, c1950.


14. ibid. (Feb 1922).

15. ibid. (Mar/Apr 1922).

16. ibid. (June 1922).


