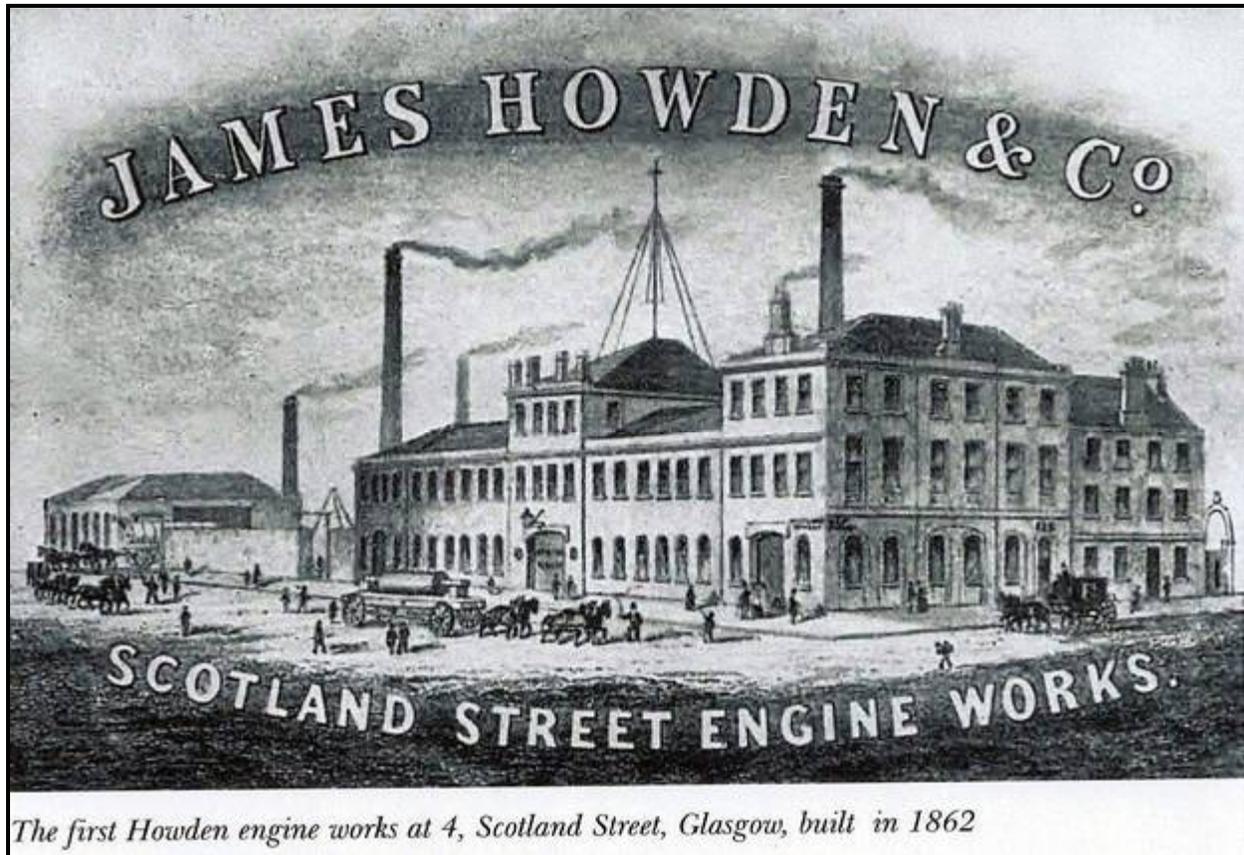


JAMES HOWDEN & COMPANY THE FAN MAKERS

by Brian Roberts, CIBSE HERITAGE GROUP



In 1854, James Howden set up as a consulting engineer and in the same year established James Howden & Company as a manufacturer of marine equipment. In 1857, he began work on the design and supply of boilers and steam engines for the marine industry. Over the years his Company became involved in the manufacture of fans. As the overall business grew and became profitable, during the second half of the 20th century, the Company took over many of the long-established of the world's leading fan makers, including Sturtevant, Davidson, Buffalo Forge, Airscrew, and later Novenco and Flakt Woods.

1854

JAMES HOWDEN STARTED BUSINESS AS
A CONSULTING ENGINEER

1862

FIRST WORKS OPENED IN
SCOTLAND STREET, GLASGOW

1872

LARGER WORKS BUILT IN
SCOTLAND STREET

1882

PATENT GRANTED FOR HOWDEN'S
HOT AIR FORCED DRAUGHT SYSTEM

1898

LARGER WORKS BUILT AT PRESENT ADDRESS
IN SCOTLAND STREET

1907

THE FIRM BECAME A
PRIVATE LIMITED COMPANY

1913

JAMES HOWDEN, THE FOUNDER, DIED

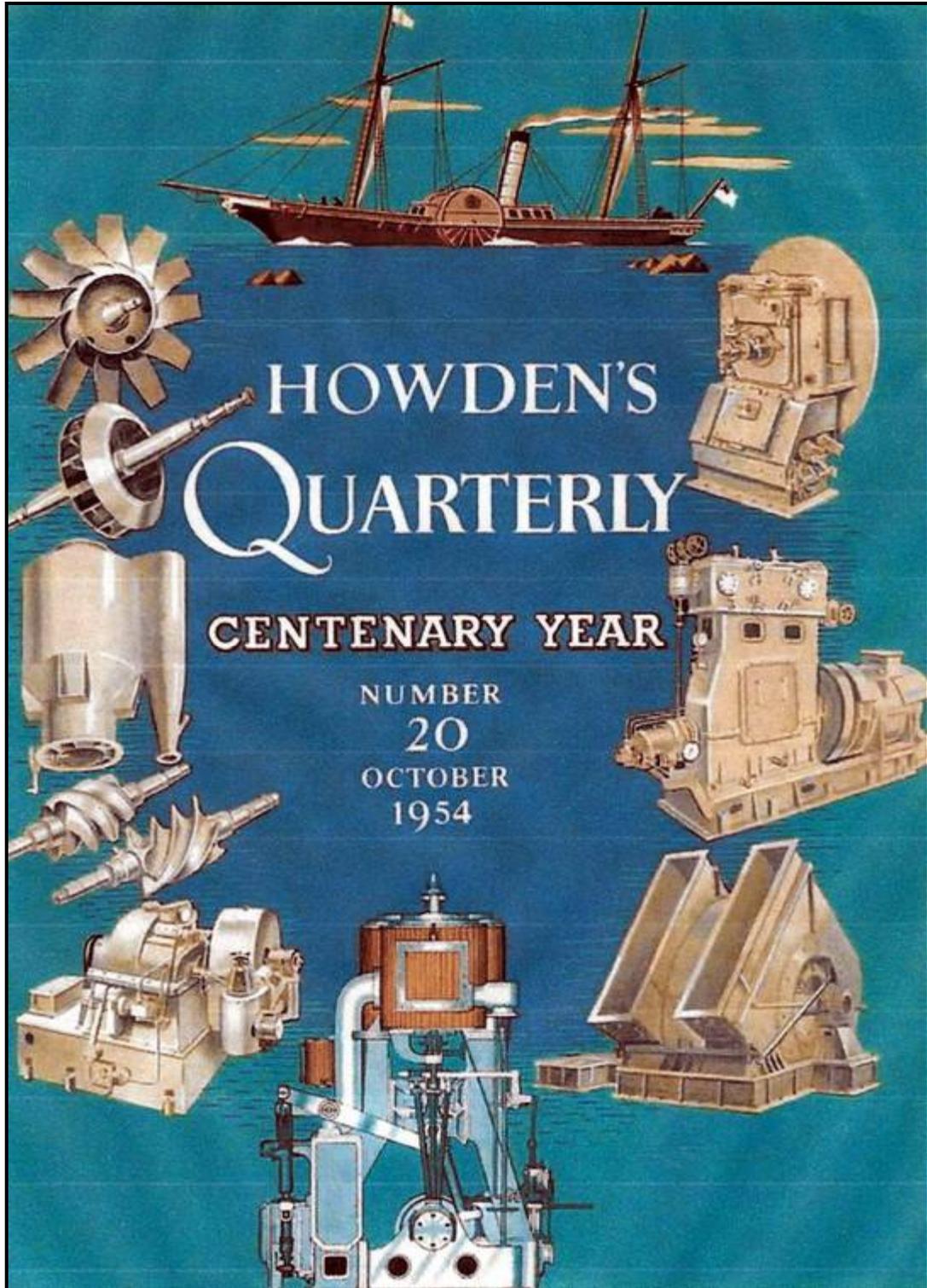
1939

FORMATION OF A PUBLIC COMPANY

1954

LARGE EXTENSION BUILT AT
SCOTLAND STREET WORKS

HOWDEN GROUP

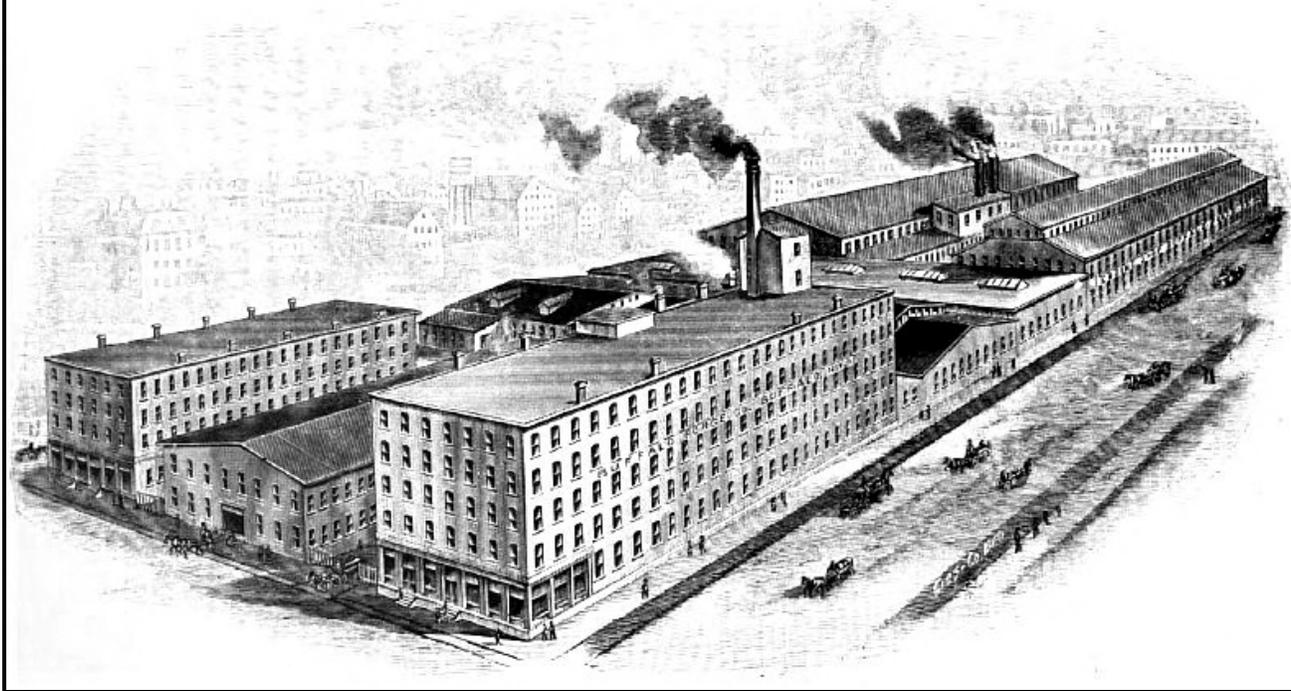


While manufacturing their own range of fans, Howden acquired both Davidson and Sturtevant

BUFFALO FORGE COMPANY

View of Buffalo Forge Company's Works,

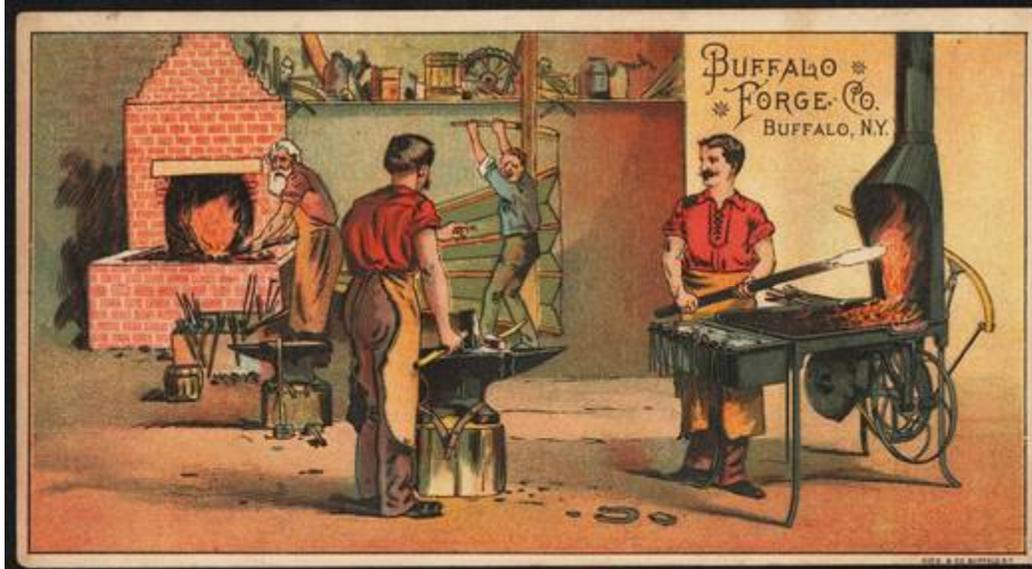
BUFFALO, N. Y., U. S. A.



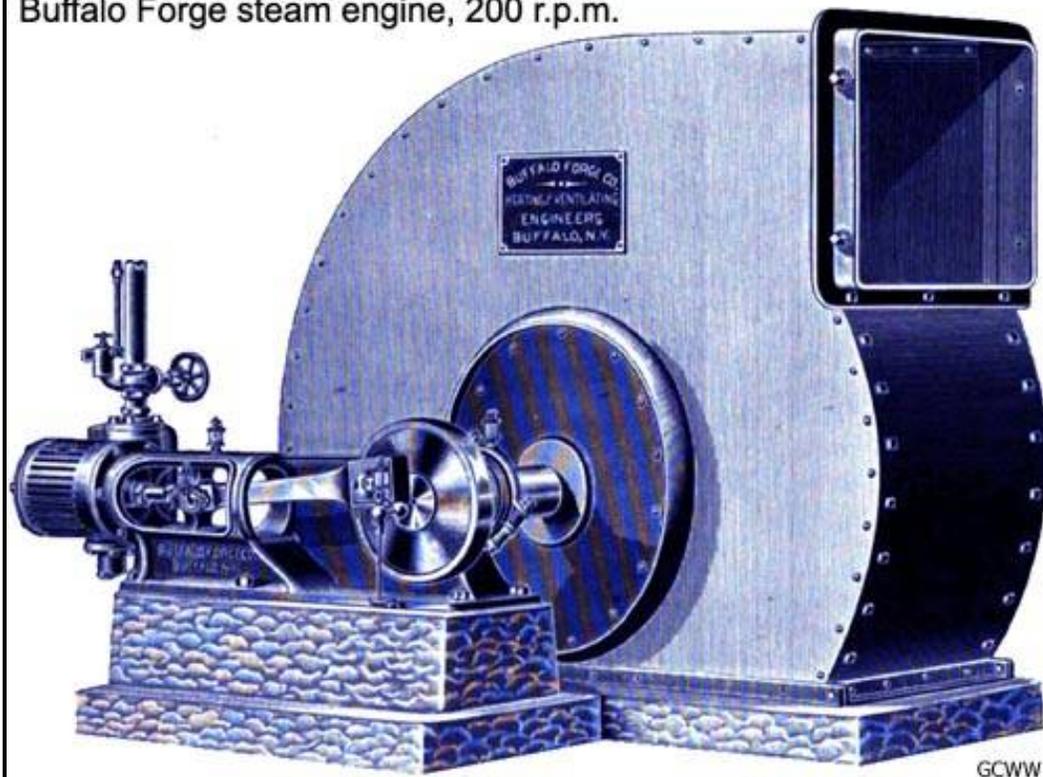
Buffalo Forge Company was founded by the Wendt Brothers in 1867 in Buffalo in New York State. It began by manufacturing forge equipment for blacksmiths, later becoming involved in the growing heating and ventilating industry at a time when design was based on rule-of-thumb and experience. This was to change when a young Willis Carrier joined the Company in 1901 and set about establishing reliable data and procedures. The result of his first research was a formula for selecting mechanical draught fans for maximum boiler efficiency with minimum fan horsepower. Impressed by his findings, the Company owners set Carrier up with what was to become an industrial laboratory. Carrier went on to establish methods for the testing, rating and selection of steam air-heating coils.

The next problem given to Carrier was how to reduce the humidity of air and hold the moisture content at a specified level. He is generally credited with designing the world's first scientific air conditioning air conditioning system (though the installation for reasons beyond his control was not entirely successful and arguably not the first). However, for his later work, Carrier is generally referred to as "The Father of Air Conditioning" and in 1907 Buffalo Forge set up a subsidiary named Carrier Air Conditioning Company of America. This continued successfully until the outbreak of the First World War when, uncertain about future business, the Wendt Brothers closed the Company. This led Willis Carrier and six other engineers to set up Carrier Engineering Corporation in 1915, which went on to become the largest and most famous air conditioning company in the world. Buffalo Forge continued in business until acquired by Howden in 1993.

BUFFALO FORGE COMPANY



Dual 85 inch Buffalo Forge Co. stack draught fans with direct drive Buffalo Forge steam engine, 200 r.p.m.



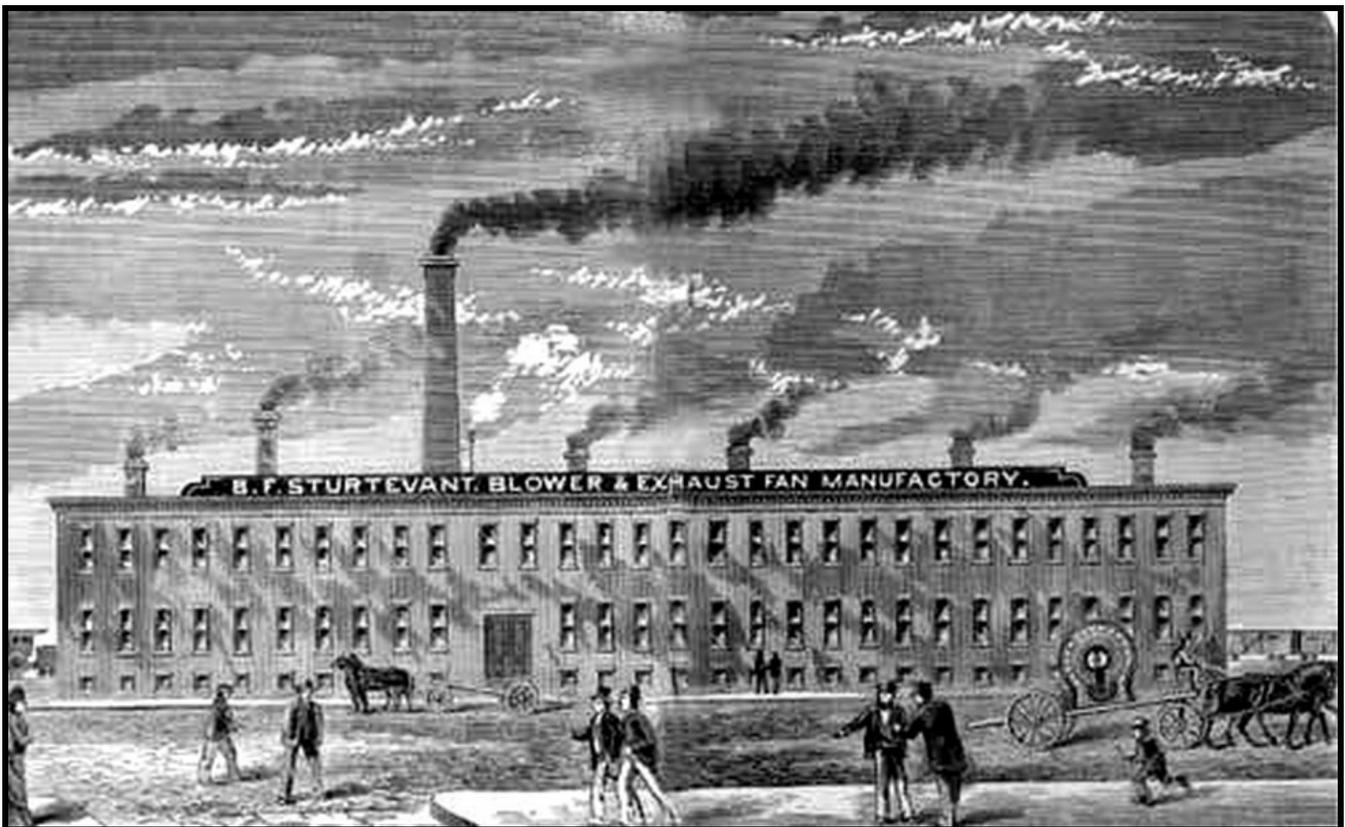
GCWW

B F STURTEVANT COMPANY

Benjamin Franklin Sturtevant was an American fan engineer and possibly the most important name in ventilation during the second half of the 19th century. He was borne in Norridgewock, Maine, on 18 January, 1833, where he learned the trade of shoemaking, moving to Boston in 1856. In about 1850 Sturtevant built a crude fan to relieve the summer heat. Around 1861 he employed 8 men to build centrifugal fans, creating the centrifugal fan industry in the USA.

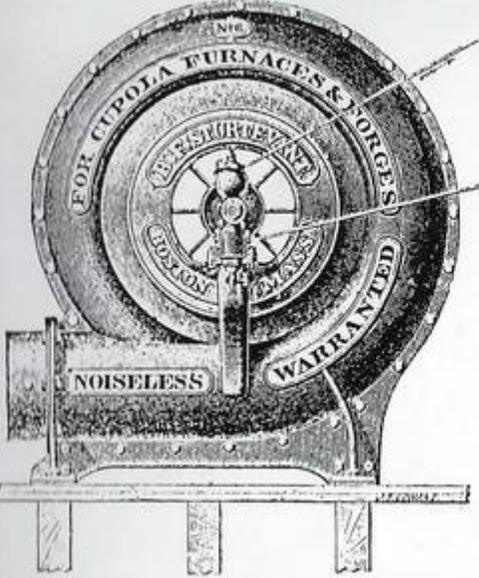
As the business grew the company moved to a factory in Jamaica Plain and was now making fans, steam engines, heating coils and drying apparatus while providing complete heating & ventilation systems. Sturtevant went on to expand in New York, Chicago, Philadelphia and then in England and Germany, becoming the largest fan manufacturing company in the world.

Sturtevant would later be taken over by Davidson & Company.



The B F Sturtevant Blower & Exhaust Fan Manufacturing

B F STURTEVANT COMPANY



STURTEVANT STEEL PRESSURE BLOWER,
For Cupola Furnaces and Forges.
The Blower which excels all others, producing maximum results with minimum power. Used in the largest establishments in the country, where the strongest blast is required.

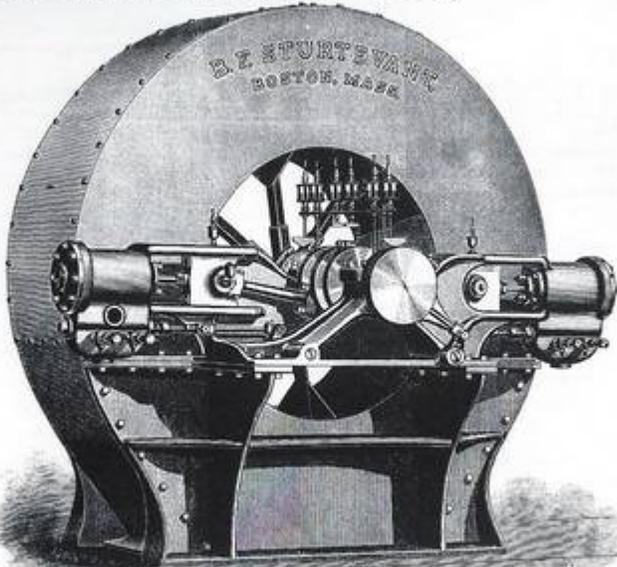
STURTEVANT PATENT IMPROVED FAN BLOWER,
For Steam Boilers, Puddling and Heating Furnaces.

STURTEVANT PATENT EXHAUST FAN,
For removing Shavings and Dust from Wood-working Machines, Dust from Sand and Emery Wheels, and for Ventilation.
Send for Illustrated Catalogue.

B. F. STURTEVANT, Patentee and Sole Manufacturer,
70 & 72 Sudbury St., Boston, Mass.

Advertisement of 1872

B. F. STURTEVANT CO., — Boston, Mass.



THE STURTEVANT SPECIAL STEAM FAN.
DOUBLE HORIZONTAL ENGINE.

BRANCH STORES.

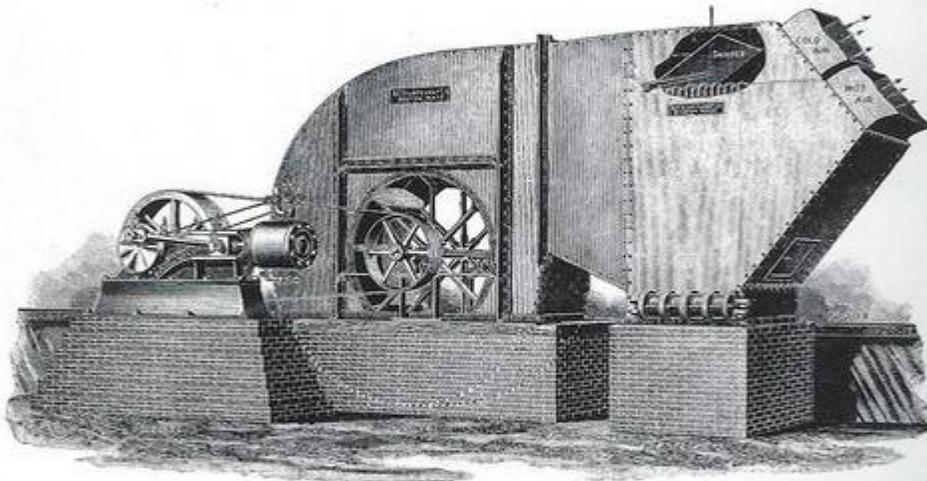
24 Oliver St., BOSTON, MASS.	16 South Canal St., CHICAGO, ILL.	21 West Nile St., GLASGOW, SCOTLAND.
121 Liberty St., NEW YORK, N. Y.	75 Queen Victoria St., LONDON, E. C., ENG.	25 Wilhelmstrasse, BERLIN, GERMANY.
135 North Third St., PHILADELPHIA, PA.		2 Kungsholmstorg, STOCKHOLM, SWEDEN.

Advertisement of 1895

B F STURTEVANT COMPANY

The Sturtevant System OF HEATING AND VENTILATION

By a Forced Circulation of Warm Air
is applicable to all classes of buildings



The Sturtevant System Is Superior to Direct Heating

BECAUSE

The apparatus is centralized and under one man's control.
There is no steam piping scattered around the building.
Consequently no danger of freezing or of damage from leaky joints, valves, or aircocks.
The heater is specially adapted to the use of exhaust steam.
Heating can be accomplished with great rapidity.
Building can be cooled and ventilated in summer.
Humidity can be regulated.

BECAUSE

Ample and positive ventilation is provided.
Quantity and quality of air are under absolute control.
Constant temperature can be maintained and air volume varied when "hot and cold system" is used.
The heating surface is inclosed in a fireproof casing.
The air-ducts are fireproof.
There is no tendency to noise.
Operation is independent of wind and weather.

Send for Catalogue No. 112, describing the system in detail

B. F. Sturtevant Company, Boston, Mass.

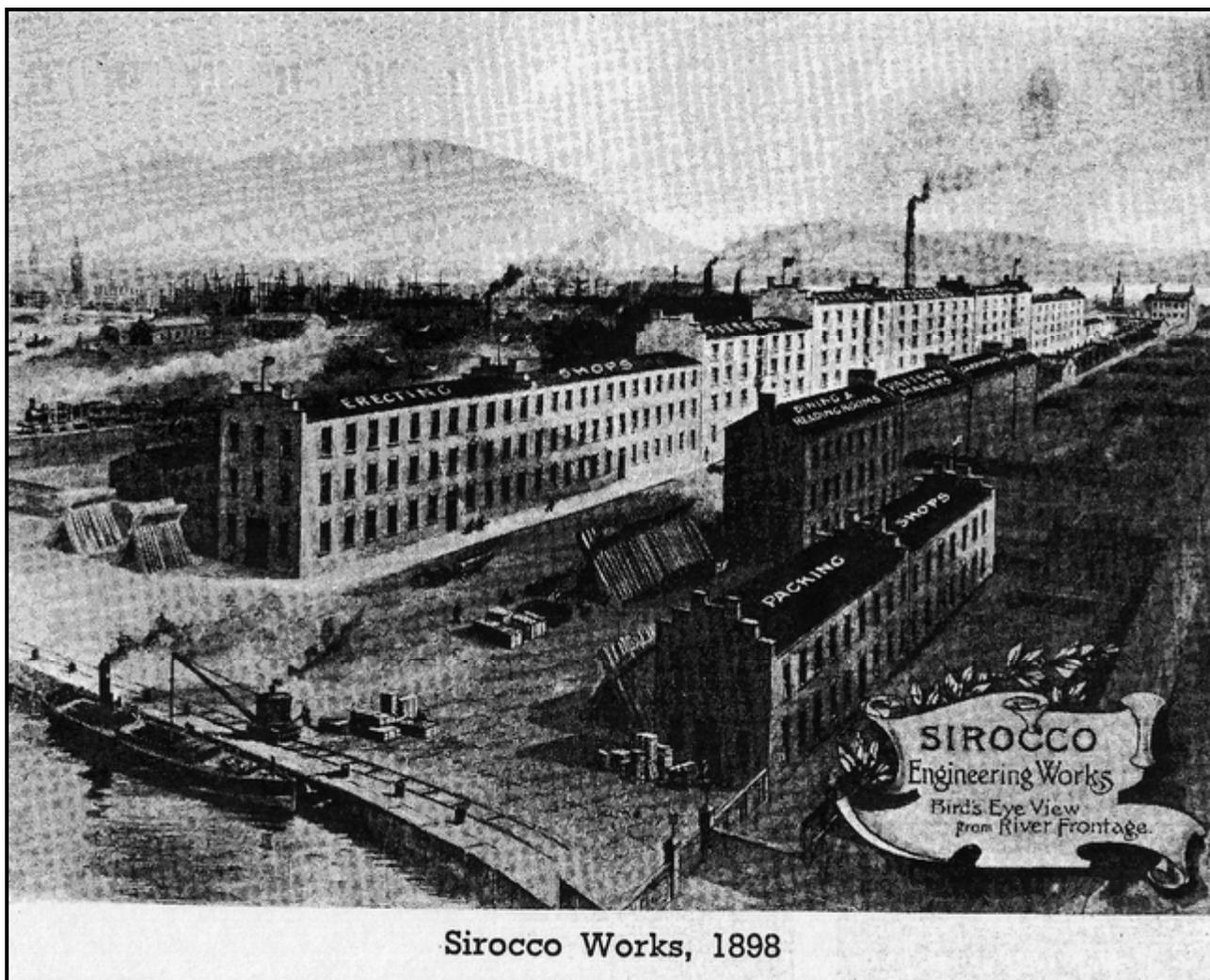
NEW YORK:
121 Liberty St.

PHILADELPHIA:
135 No. Third St.

CHICAGO:
16 So. Canal St.

LONDON:
75 Queen Victoria St.

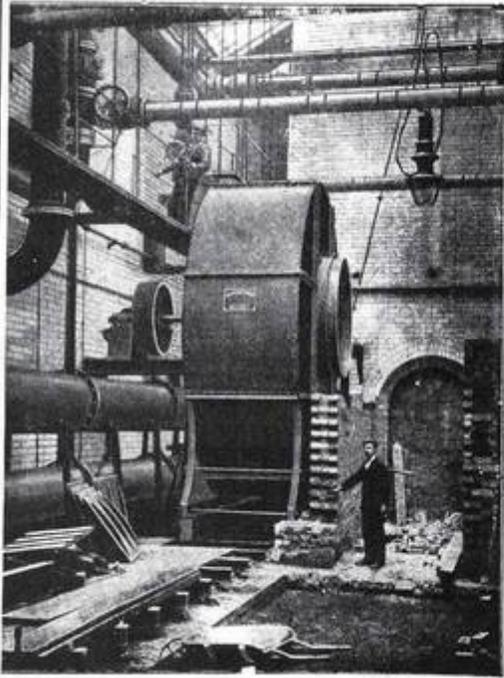
DAVIDSON & COMPANY LTD



Samuel Cleland Davidson was born in County Down, Ireland in 1846. From about 1864, he worked on a tea plantation located 30 miles northeast of Calcutta, in which his father had purchased an interest. In 1869, he became sole proprietor and recognised the potential benefits of mechanisation. He sold the plantation in 1874 and returned to Belfast to superintend the manufacture of tea machinery.

In 1881, he established his *Sirocco* Engineering Works in Belfast and then setting up Davidson & Company Ltd in 1898. It was here that he conducted experiments to improve the centrifugal fans employed in his tea-drying equipment. In 1900, he was granted US patents for his Sirocco fan which were introduced on the American market by the Sirocco Engineering Company of New York which incorporated the American Blower Company.

DAVIDSON & COMPANY LTD



Heating—Cooling
 Mechanical Draft
 for Boilers

Davidson's Patent
SIROCCO
 Centrifugal Fans

Sirocco Engineering Co.
 22 Thames Street, New York

Engineering Review, September 1906



AMERICAN BLOWER CO.

"A B C" DISC
 VENTILATING
 FANS

are constructed upon scientific principles. Strength, durability and efficiency certainly urge their adoption for Ventilating, Cooling and the many other applications for which they are adapted.

Descriptive catalog and specific information sent in response to all inquiries.

SPECIFY CATALOG 111-P.

AMERICAN BLOWER COMPANY
 DETROIT, MICH.

New York 141 Broadway Chicago Marquette Bldg. London 70 Gracechurch St.

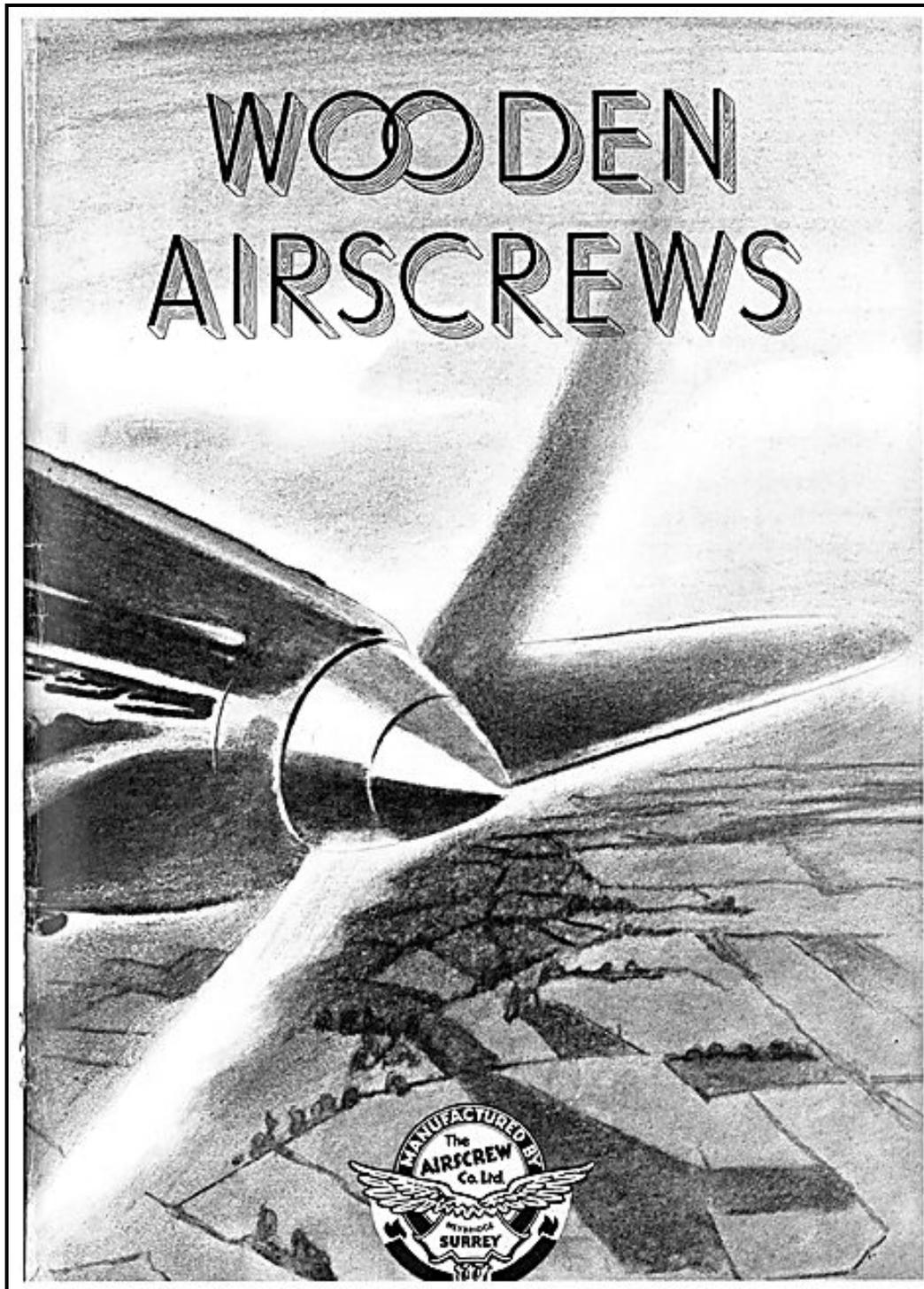
HEATING, VENTILATING AND DRYING ENGINEERS

Manufacturers of Hot Blast Heaters, Steel Plate and Disc Fans, Blowers, Dry Kilns, etc.

NEW YORK DETROIT LONDON

Engineering Review, February 1902

THE AIRSCREW COMPANY LTD

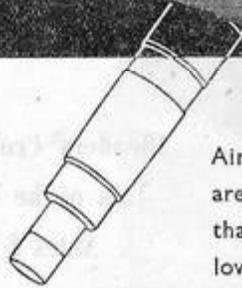
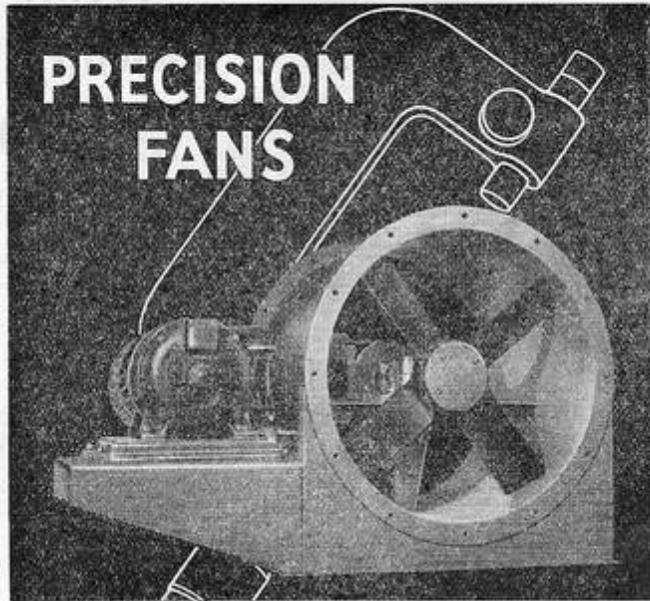


The Airscrew Company was set up in Weybridge, Surrey, in 1923 and at its peak supplied wooden propellers to nearly every aircraft company in England

THE AIRSCREW COMPANY LTD

JOURNAL OF THE INSTITUTION OF HEATING AND VENTILATING ENGINEERS

PRECISION FANS



When specifying
Blackout fans con-
sider the resistance
of blackout devices.
Ordinary free air
fans are disappoint-
ing, Airscrew fans
give lasting satisfac-
tion.

Airscrew Heavy Duty Precision Fans are designed for accurate performance that is almost proverbial. Costs are low and we guarantee volume and power consumption against designed pressures. When sending enquiries you need not add to your calculated resistances, the performance of all Airscrew Fans is absolutely reliable. We have resident district engineers ready to give advice.

AIRSCREW AXIAL FLOW FANS

THE AIRSCREW Co., Ltd., Grosvenor Gardens House, Westminster, London, S.W.1.

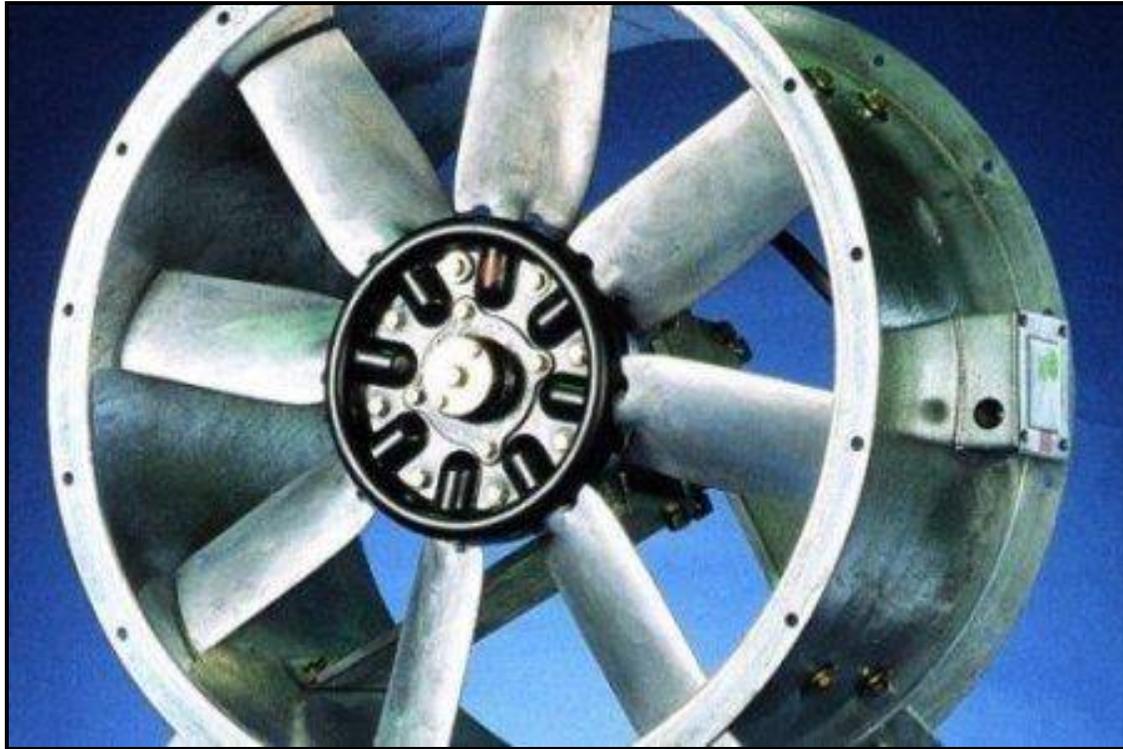
'Phone VICtoria 4527

AF 141

JIHVE, April/May, 1942

The Company later manufactured a range of axial flow fans becoming part of the Howden Group in 1947

NOVENCO

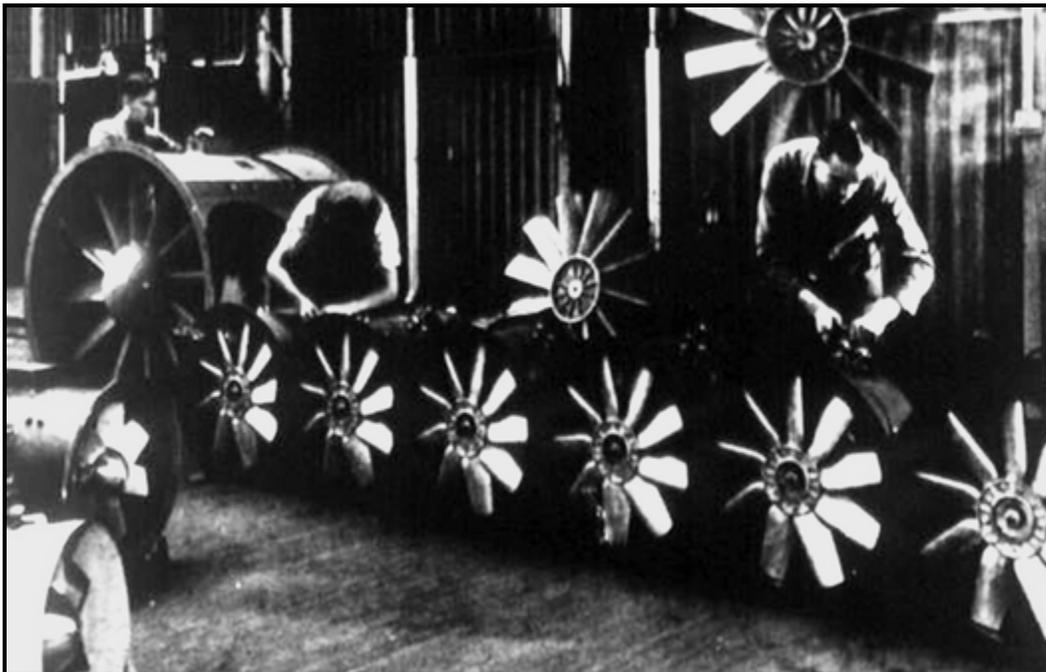


Novenco began the manufacture of axial flow fans in Denmark in 1947
and was acquired by the Howden Group in 1993

FLAKT WOODS



Svenska Flaktfabriken was set up in Jonkoping, Sweden in 1918



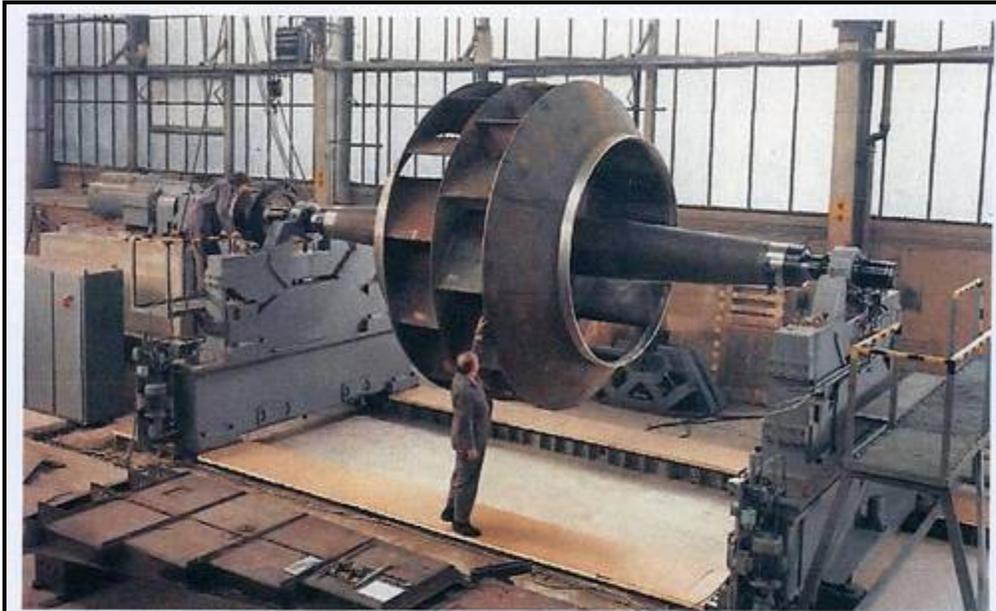
Woods began fan manufacture in Colchester, Essex in 1909 and merged with Flaktfabriken in 2002 to form Flakt Woods which became part of Howden in 2013

FLAKT WOODS



Flakt Woods factory at Colchester, Essex

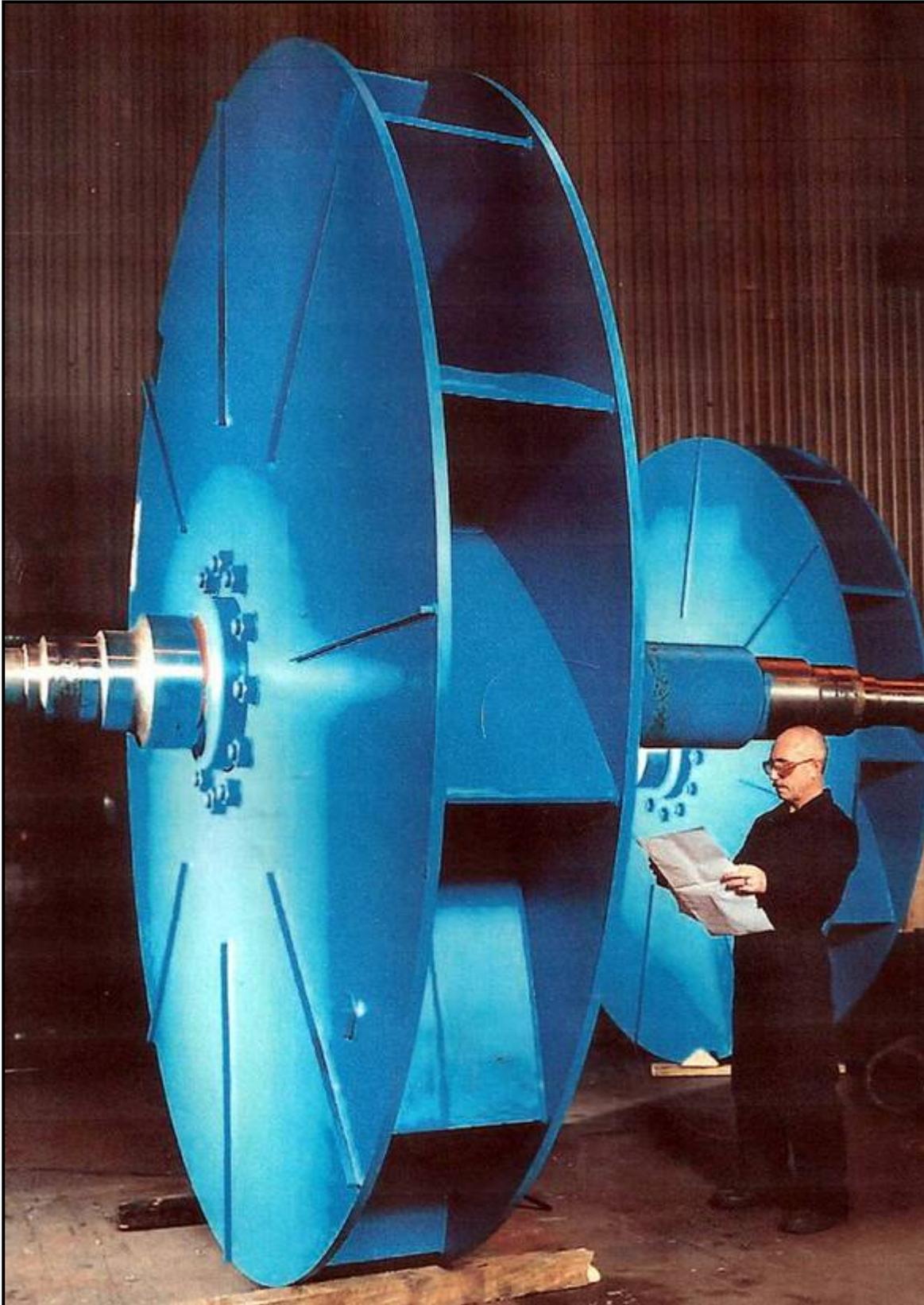
HOWDEN GROUP



A 3.55m Z9 double inlet fan impeller being prepared for balancing on the Hoffman balance testing machine in the Glasgow Scotland Street works



HOWDEN GROUP



Howden Sirocco L-Type centrifugal fan impellers

HOWDEN GROUP



The now derelict Howden factory in Glasgow

BIBLIOGRAPHY

1899 *Mechanical Draft*, B F Sturtevant Company, Catalogue No.98

1906 *Ventilation and Heating*, B F Sturtevant Company, Catalogue No.84, 6th Edition

1909 *S C Davidson MIMÉ*, Engineering Review, Vol. XIX, May

1990 *Benjamin F Sturtevant: from Shoes to Fans*, Bernard Nagengast, pp. 89-91, Supply House Times, October

1994 *Heat & Cold: Mastering the Great Indoors*, Barry Donaldson & Bernard Nagengast, ASHRAE

2000 *The Comfort Makers*, Brian Roberts, ASHRAE

2016 *History of Howden*, Howden Ltd Group (internet)