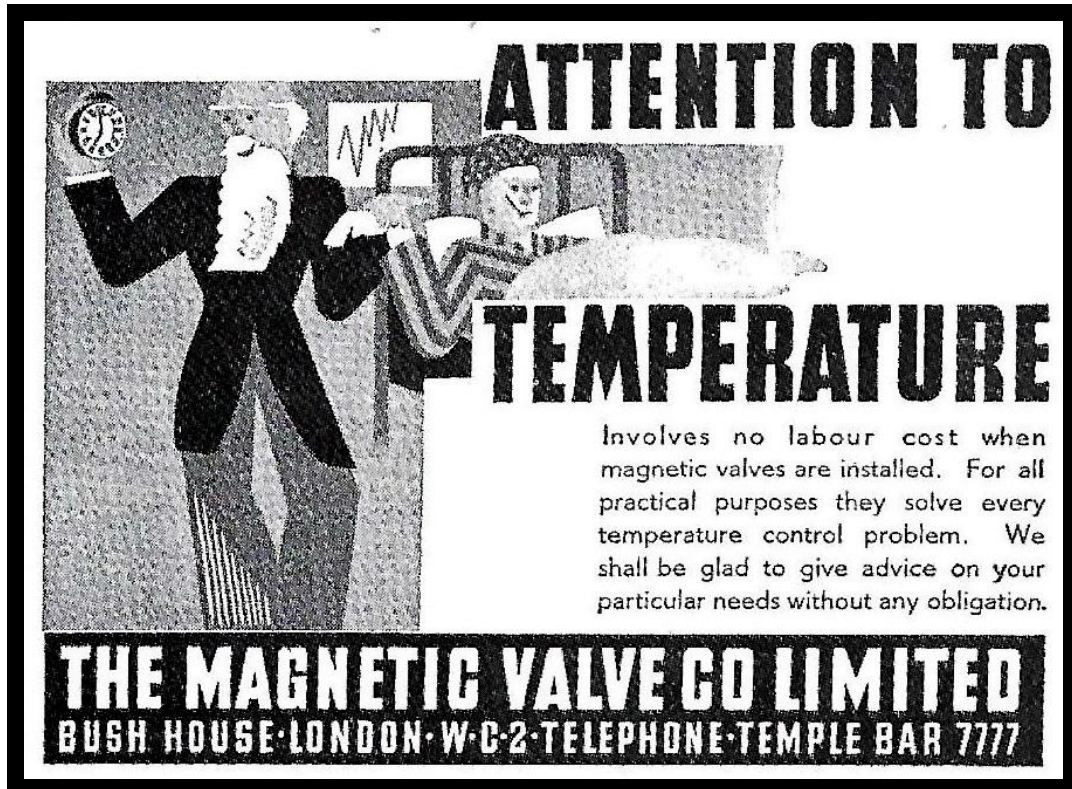


# CONTROLS



**ATTENTION TO  
TEMPERATURE**

Involves no labour cost when magnetic valves are installed. For all practical purposes they solve every temperature control problem. We shall be glad to give advice on your particular needs without any obligation.

**THE MAGNETIC VALVE CO LIMITED**  
BUSH HOUSE LONDON W.C.2 TELEPHONE TEMPLE BAR 7777

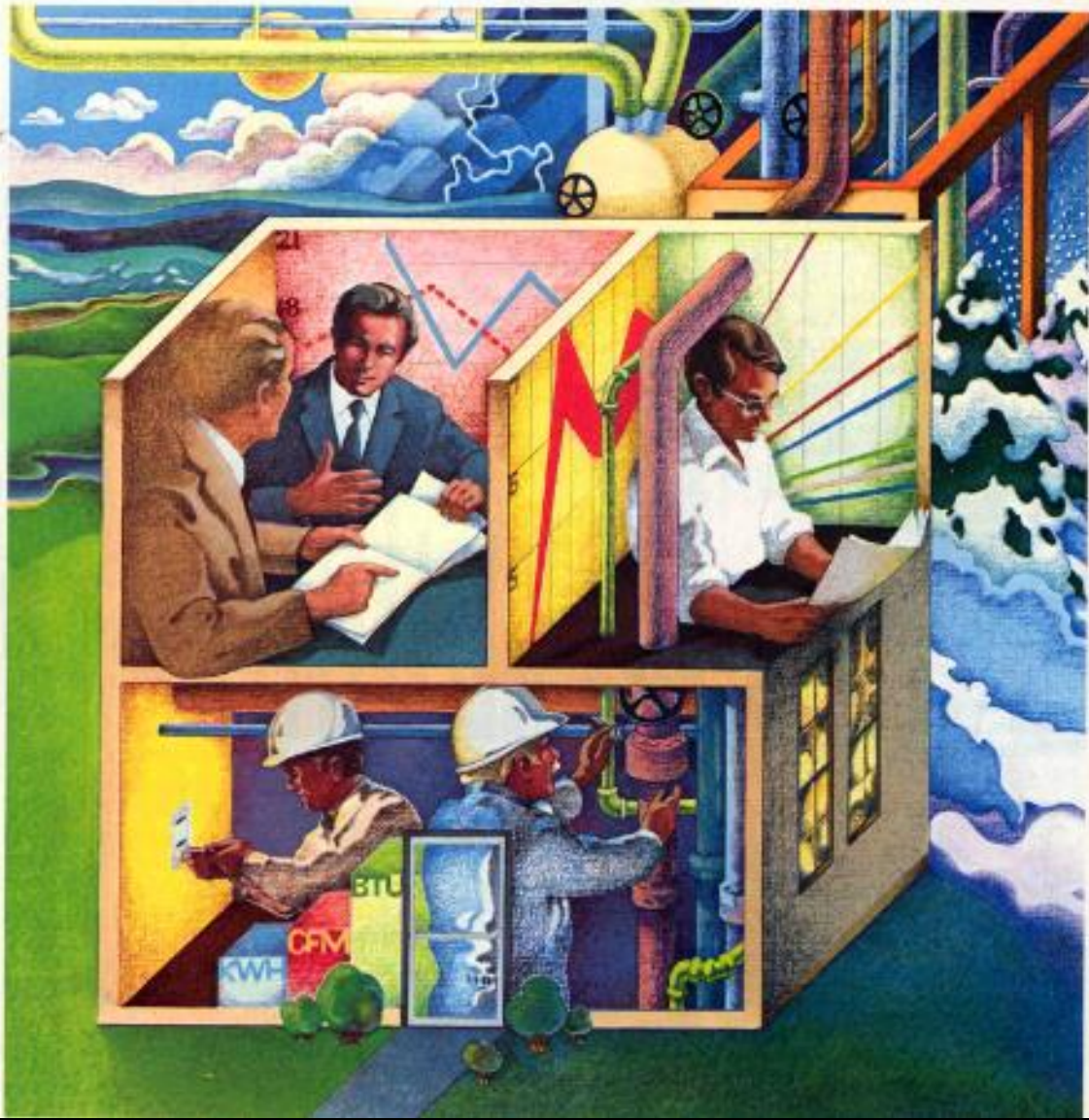
JHVE, March 1938.

# CONTROLS PIONEERS AND COMPANIES

## BRIAN ROBERTS

# CONTROLS

## IMPLEMENTING YOUR ENERGY PLAN



Honeywell Brochure of 1979.

# CONTROLS



Testing a steam control valve at the Johnson Factory, 1944.

Photographs, advertisements and book covers are taken from the CIBSE Heritage Group website and Archives. Many of the very early ones are in poor condition, but have been included because of their special interest or rarity. BMR, Budleigh Salterton 2020

## CONTROLS PIONEERS

**Andrew Ure 4, Dr Neil Arnott 5, John G. Appold 6, Alfred Butz 7, Warren S. Johnson 8, William R. Sweat 9, Mark Honeywell 10, William P. Powers 11, Howard D. Colman 12, Mads Clausen 13,**

## CONTROLS COMPANIES

**Barber-Colman 14, Belimo 16, Carrier 17, Danfoss 18, Electric Heat Regulator 22, Honeywell inside front cover, 2,24, Johnson inside back cover, 3,30, Magnetic Valve 1, Minneapolis Honeywell 34, Pascal Ironworks front cover, Powers Regulator 38, Satchwell 42, Staefa 43, Honeywell & CIBSE 44, Sweatt Mfg back cover,**



<4>

## **CONTROLS PIONEERS: ANDREW URE**



**Andre Ure, 1778-1837.  
Scottish chemist who coined the word "thermostat."**

<5>

## **CONTROLS PIONEERS: Dr. NEIL ARNOTT**



**Dr. Neil Arnott, 1788-1874.**  
**Physician Extraordinary to Queen Victoria; he devised the "Thermometer Stove."**

<6>

## **CONTROLS PIONEERS: JOHN G. APPOLD**

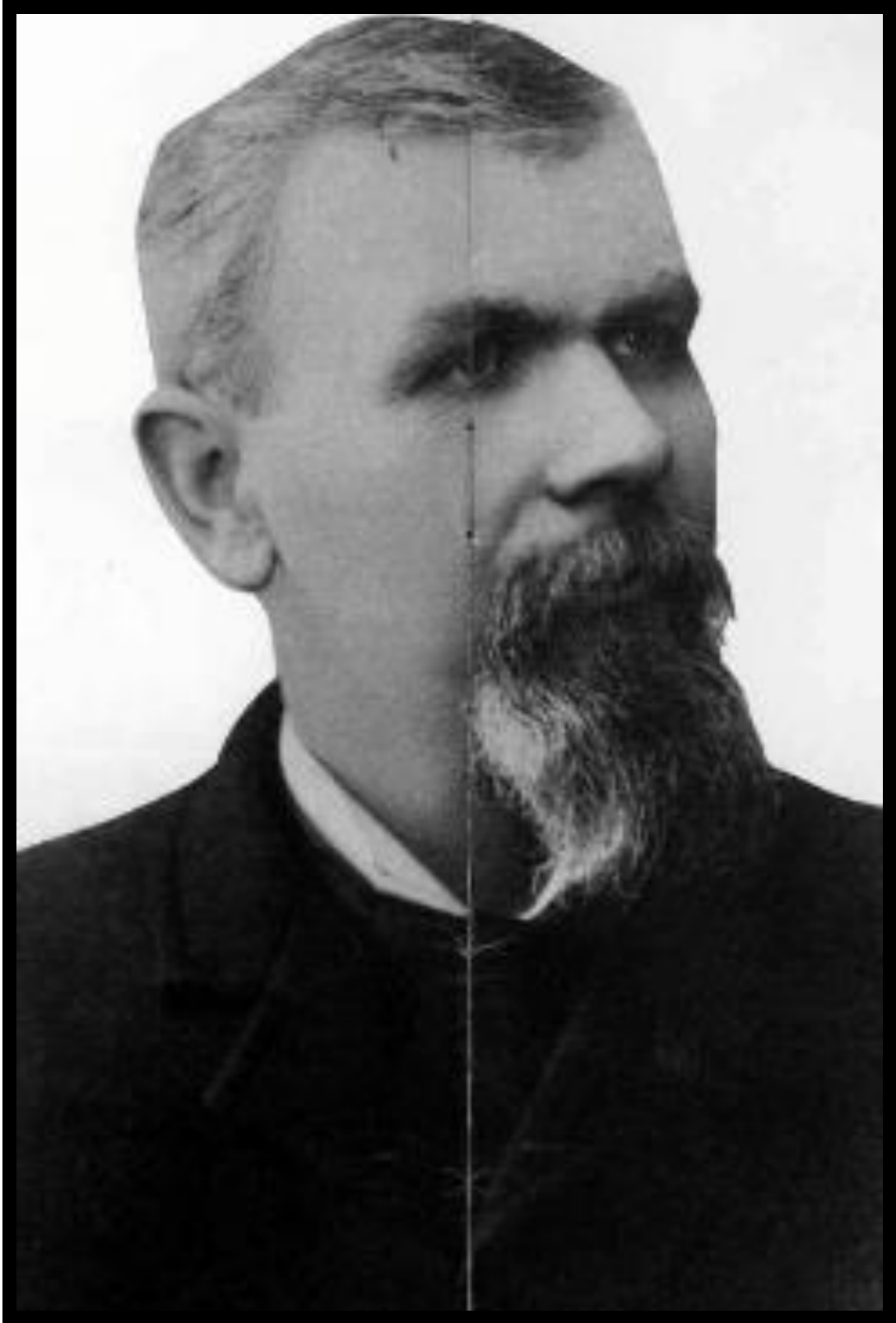


**John George Appold, c.1873.**

**Devised "an apparatus for regulating temperature and keeping the air in a building at any desired degree of moisture."**

<7>

## **CONTROLS PIONEERS: ALBERT BUTZ**



**Albert Butz, 1849-1904.  
Invented the Butz "flapper-damper" control for furnaces.**

## **CONTROLS PIONEERS: WARREN S. JOHNSON**



**Warren S. Johnson, 1847-1911.  
Invented an electric thermostat and founded the Johnson Electric Service Co.  
in Milwaukee in 1885.**

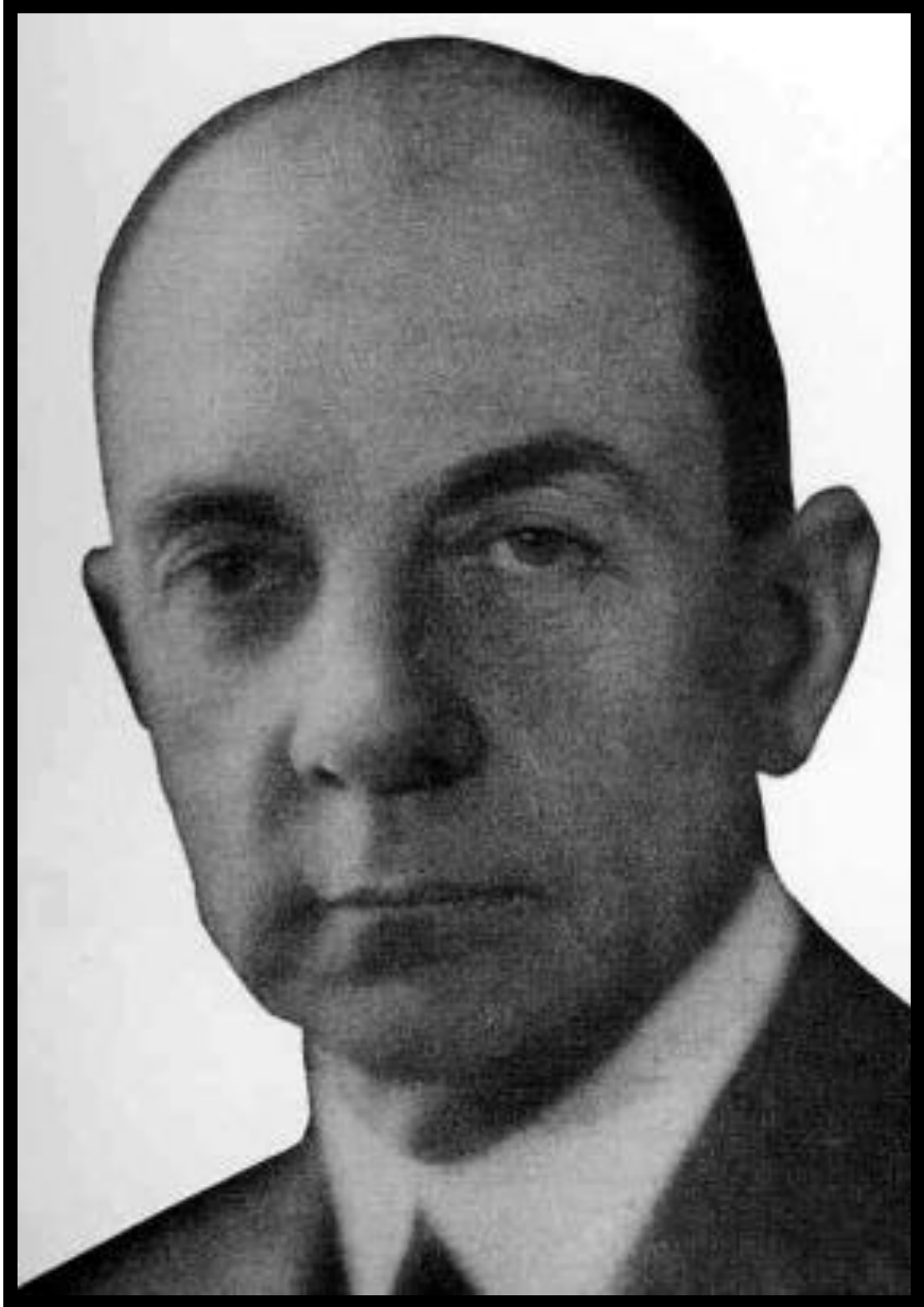


## **CONTROLS PIONEERS: WILLIAM R. SWEAT**



**William Richard Sweat, active 1890s.  
Invested in Companies which became Minneapolis Heat Regulator in 1912.**

## **CONTROLS PIONEERS: MARK HONEYWELL**



**Mark Honeywell, active 1920s.**

**Started in business as a plumbing and heating engineer, then formed the Honeywell Heating Speciality Company, merging with Minneapolis Heat Regulator in 1927 and going on to become Honeywell.**

<11>

## **CONTROLS PIONEERS: WILLIAM P. POWERS**



**William Penn Powers, active 1890s.  
Started W. P. Powers in 1860 and established the Powers Regulator Company  
in Chicago in 1890.**

<12>

## **CONTROLS PIONEERS: HOWARD D. COLMAN**



**Howard D. Colman, 1873-1942.  
Co-Founder of Barber-Colman Company 1894.**

<13>

## **CONTROLS PIONEERS: MADS CLAUSEN**



**Mads Clausen, 1905-1966.  
Founded Danfoss in Denmark in 1933.**



# COMPANIES: BARBER-COLMAN



Remembering Howard Colman's 1894 Patent. The Company was founded in 1900 to make textile machinery, starting an Electrical Division in 1926.

# COMPANIES: BARBER-COLMAN



Barber-Colman Management Systems.



# COMPANIES: BELIMO

SEE US AT BOOTH 1788

## Excellence In Air Control

Precision. Reliability. Simplicity. Signs of excellence easy to see in Belimo air damper actuators.

Direct coupling and advanced electronics give you unparalleled precision. A quality record second to none gives you peace of mind. Numerous user-friendly features make installation and servicing a snap. And Belimo, the recognized leader in damper actuation, gives you the highest level of product support available.

When your project requires excellence in air control, select excellence in air damper actuators. Select Belimo.



**BELIMO**

*Simply the best way to drive a damper\**

**NEW PRODUCTS:**

- NF series (80 to 16, spring return)
- Brushless dc motor in GM series (256 in-lb)
- Exposed ROP linear series



Learn more about our new products, plus the versatile AF series (133 to 16, spring return) at ASHRAE '95

USA: (800) 543-6038 (in CT 200-731-8816)  
CANADA: Vancouver (604) 648-0145 • Toronto (905) 712-3111 • Montreal (514) 922-5520

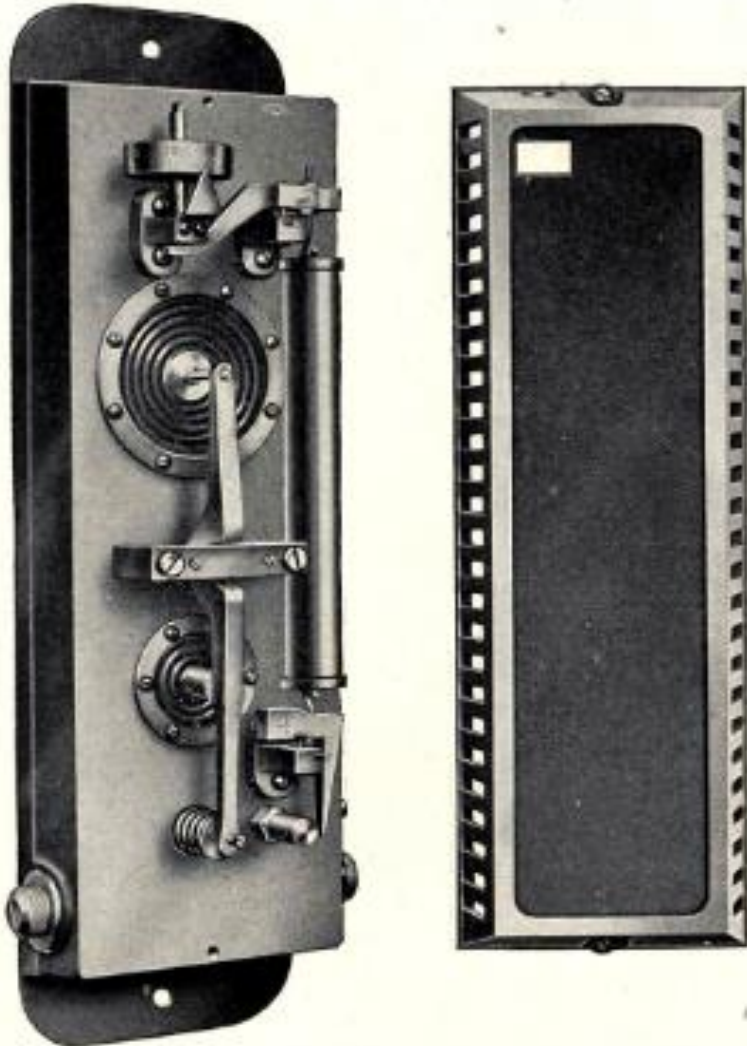
© Info No. 272 on Reader Service Card

The Company was founded in Switzerland around 1932.

## COMPANIES: CARRIER

 Carrier Engineering Company Ltd 

THE CARRIER COMPENSATING HYGROSTAT



20

*The Carrier Compensating Hygrostat with Cover removed to show the Hygroscopic Mechanism.*

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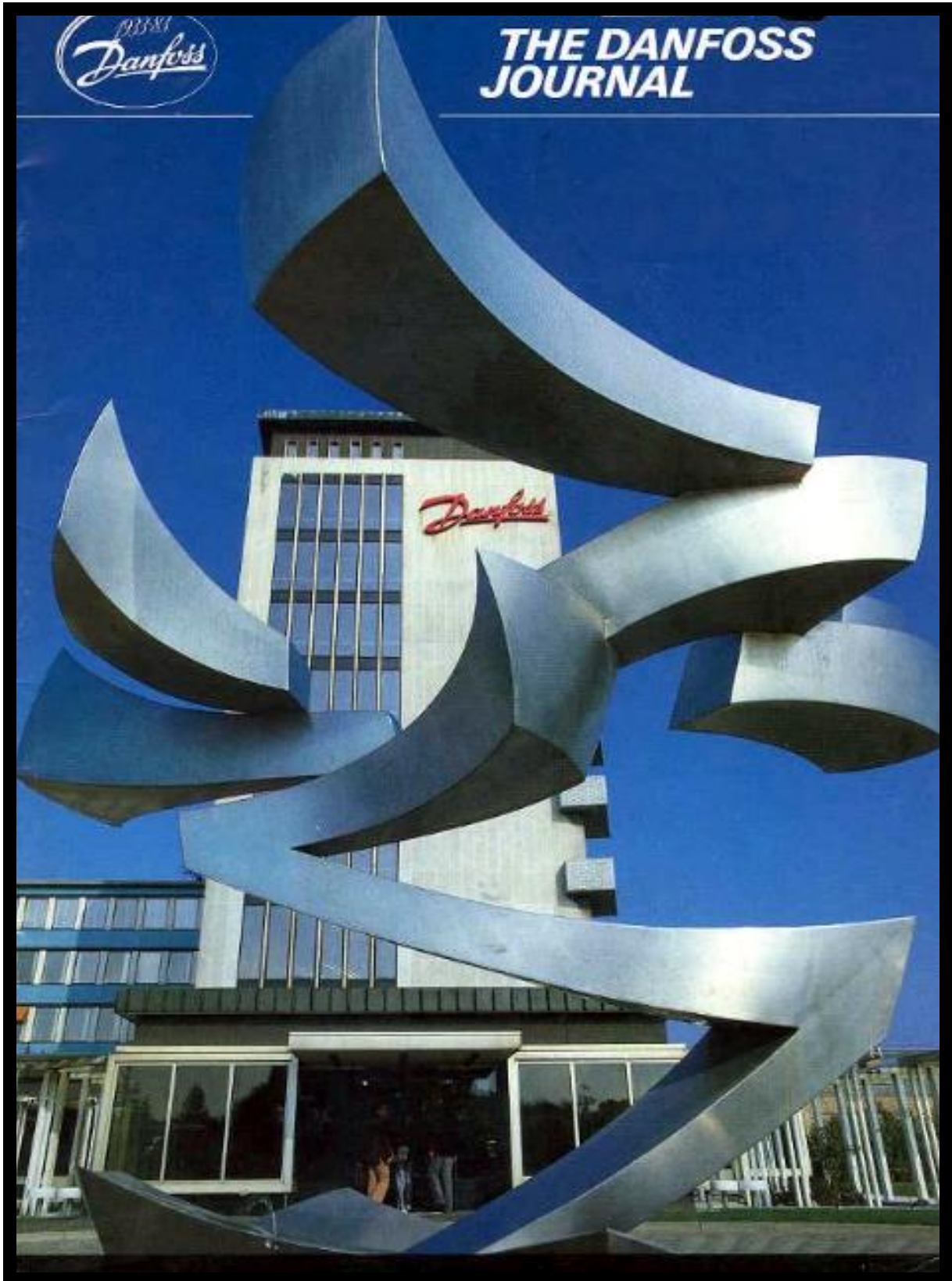
“Every day a good day”

From a Carrier Booklet of 1920 (Carrier was founded in 1915).



<18>

## COMPANIES: DANFOSS

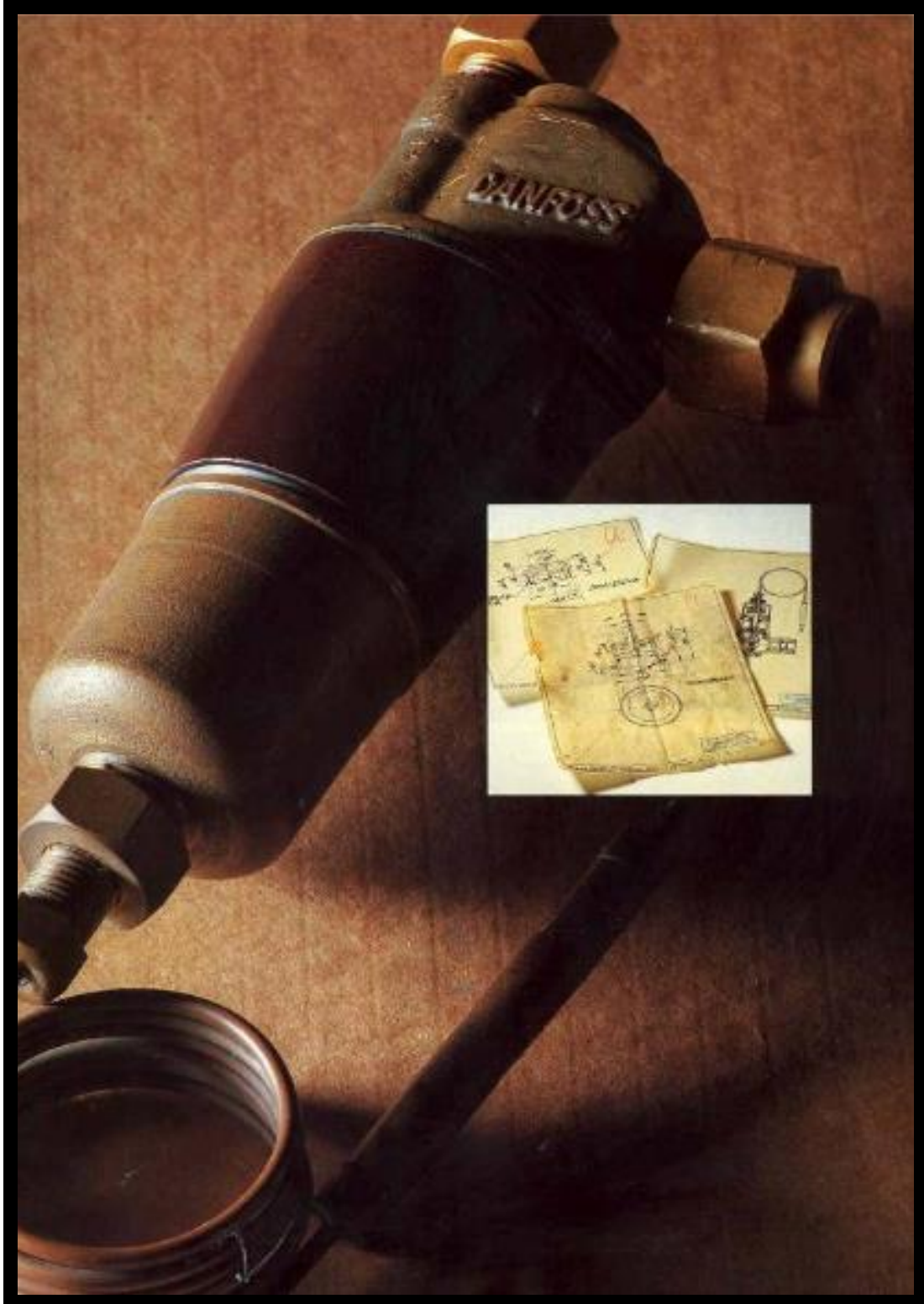


Commemorating 50 Years in 1983. The company was founded in Denmark in 1933.



<19>

## COMPANIES: DANFOSS



The Danfoss Refrigeration Expansion Valve manufactured from 1933.

# COMPANIES: DANFOSS

## A little history

Als is one of many Danish islands and has been developed from a decidedly rural to an industrial society where balance is preserved between old traditions and modern techniques.

On this island – by the town of Nordborg, halfway between Copenhagen and Hamburg – the story of Danfoss begins in 1933. The underlying idea was an auto-

matic expansion valve for refrigeration plant, conceived at the right time and quickly followed up by a series of products designed with an eye to the future that automation promised.

Mads Clausen begins the story when as a young engineer he comes home to his family farm on Als and under primitive conditions in the attic of the farmhouse

where he was born starts to turn his idea into reality by producing the first refrigeration valve.

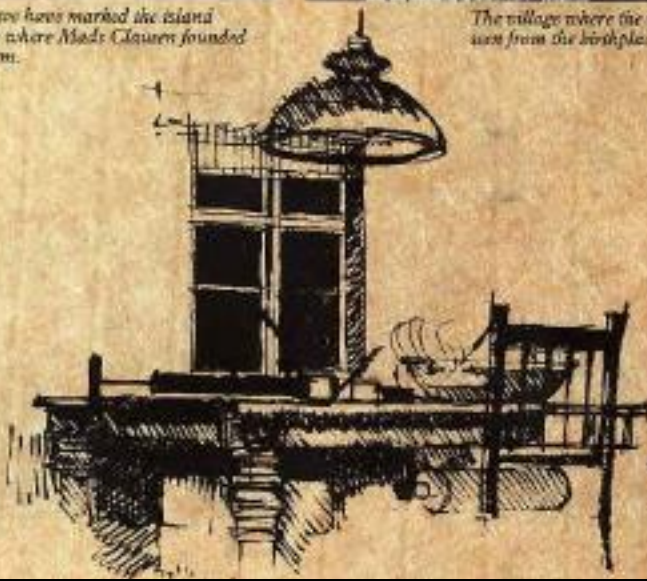
In 1933 the number of valves sold was 466. One year later the number had increased so much that Mads Clausen decided to start a "proper factory" in a wooden hut by the side of the farmhouse and engaged four people to work in it.



*Here we have marked the island of Als where Mads Clausen founded his firm.*



*The village where the whole story started, seen from the birthplace of Mads Clausen.*



*The firm's first letter-headed stationery.*

*An artist's impression of the "den" where the first drawings were made and the first experiments with the expansion valve were carried out.*

Founded in 1933.



<21>

## COMPANIES: DANFOSS



*The factory as it was around 1936.*

*The turning shop was the first milestone in the firm's history; photographed on the ten year anniversary.*



*The first large factory extension occurred in 1947. Now there was a 3800 m<sup>2</sup> area available for production.*

*Sales department personnel around 1943. There were five of them at the time.*

Early history between 1936 and 1947.

# COMPANIES: ELECTRIC HEAT REGULATOR

ELECTRIC  
HEAT REGULATOR CO.

MINNEAPOLIS  
MINN.

10  
YEARS  
IN  
USE  
ALL  
OVER  
THE  
COUNTRY

DEVICES  
FOR THE  
AUTOMATIC  
REGULATION  
OF  
TEMPERATURE  
USED ON ALL STYLES OF  
HEATING PLANTS,  
STEAM AND GAS  
VALVES, ETC

**FIRST**  
**BEST**

Do not forget that WE were Absolutely the First  
Do not forget that WE are Absolutely the Best

As We were the Pioneers in the introduction of the First  
So We are the Leaders in the Market with the Best  
HEAT REGULATOR

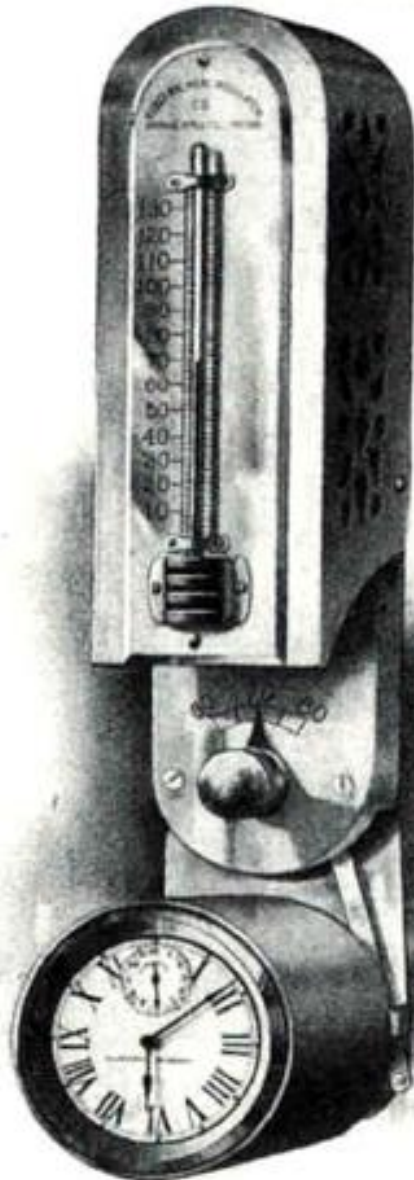
Advertisement from 1895. The Company was founded in 1885



# COMPANIES: ELECTRIC HEAT REGULATOR

## Minneapolis Heat Regulator

*With or Without Time Attachment.*



For Steam  
and  
Hot Water  
Heaters  
and  
Hot Air  
Furnaces

Automatically and  
Positively controls the Tem-  
perature.

Can be readily ad-  
justed to any  
heat.

Produces a Uni-  
form, Healthful  
Heat.

Has been on the  
Market for 25  
Years.

Thoroughly Reli-  
able and Fully  
Guaranteed.

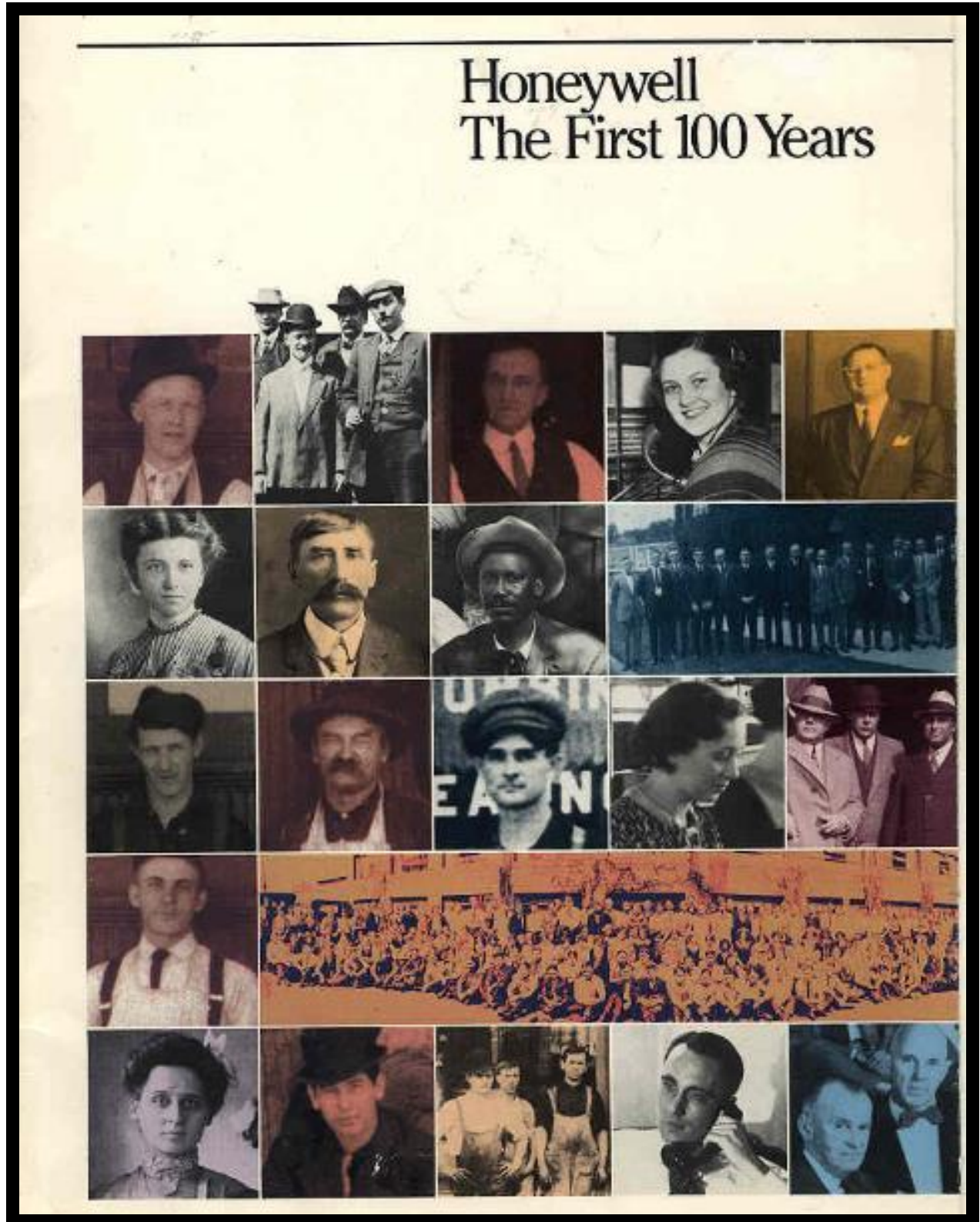
*Send for new price  
list and descrip-  
tive booklet.*

### Electric Heat Regulator Co.

Minneapolis, Minn.

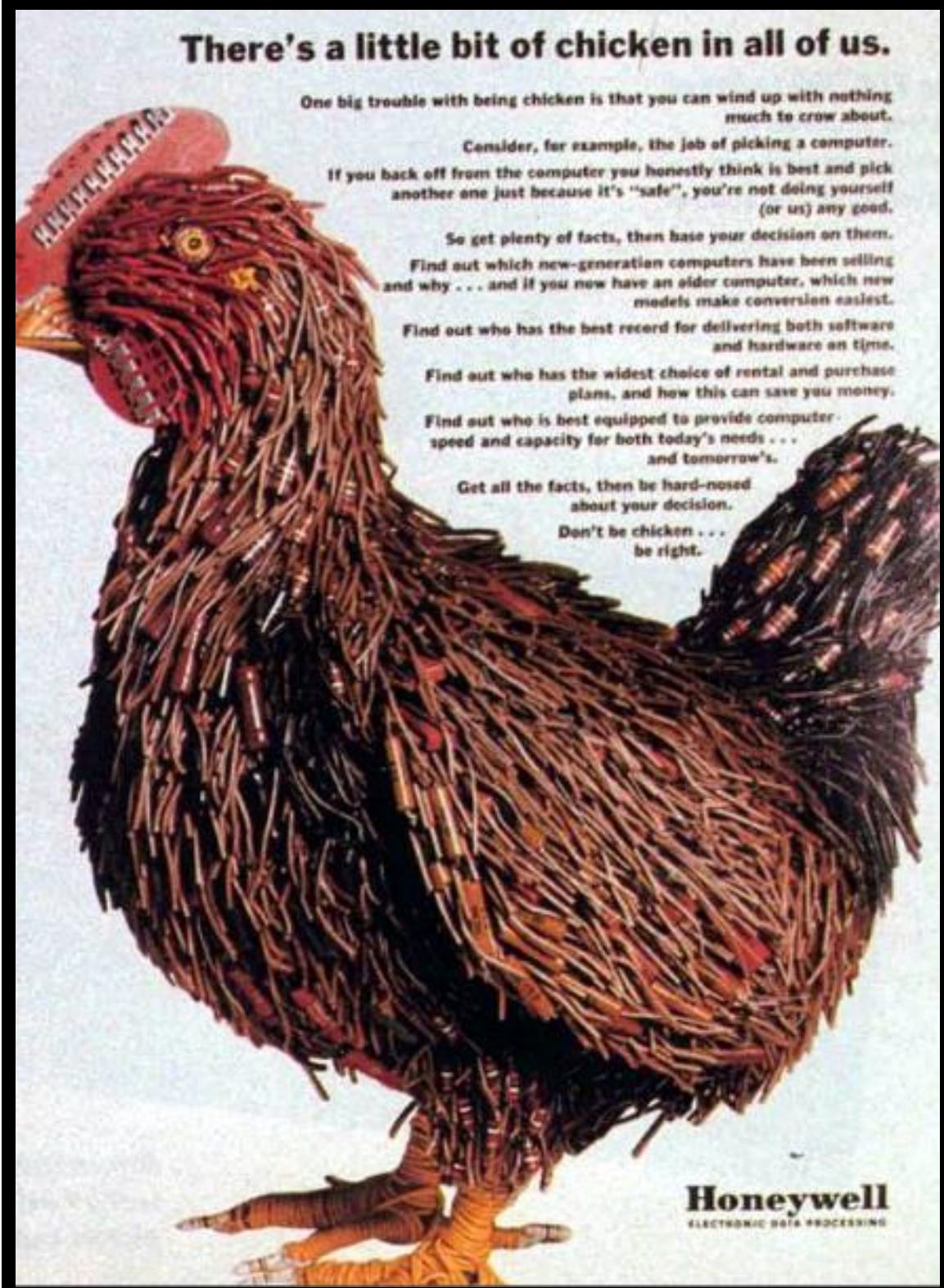


# COMPANIES: HONEYWELL



The Company origins date from 1885.

## COMPANIES: HONEYWELL



**There's a little bit of chicken in all of us.**

One big trouble with being chicken is that you can wind up with nothing much to crow about.

Consider, for example, the job of picking a computer.

If you back off from the computer you honestly think is best and pick another one just because it's "safe", you're not doing yourself (or us) any good.

So get plenty of facts, then base your decision on them.

Find out which new-generation computers have been selling and why . . . and if you now have an older computer, which new models make conversion easiest.

Find out who has the best record for delivering both software and hardware on time.

Find out who has the widest choice of rental and purchase plans, and how this can save you money.

Find out who is best equipped to provide computer speed and capacity for both today's needs . . . and tomorrow's.

Get all the facts, then be hard-nosed about your decision.

Don't be chicken . . . be right.

**Honeywell**  
ELECTRONIC DATA PROCESSING

From "The First 100 Years", 1985.



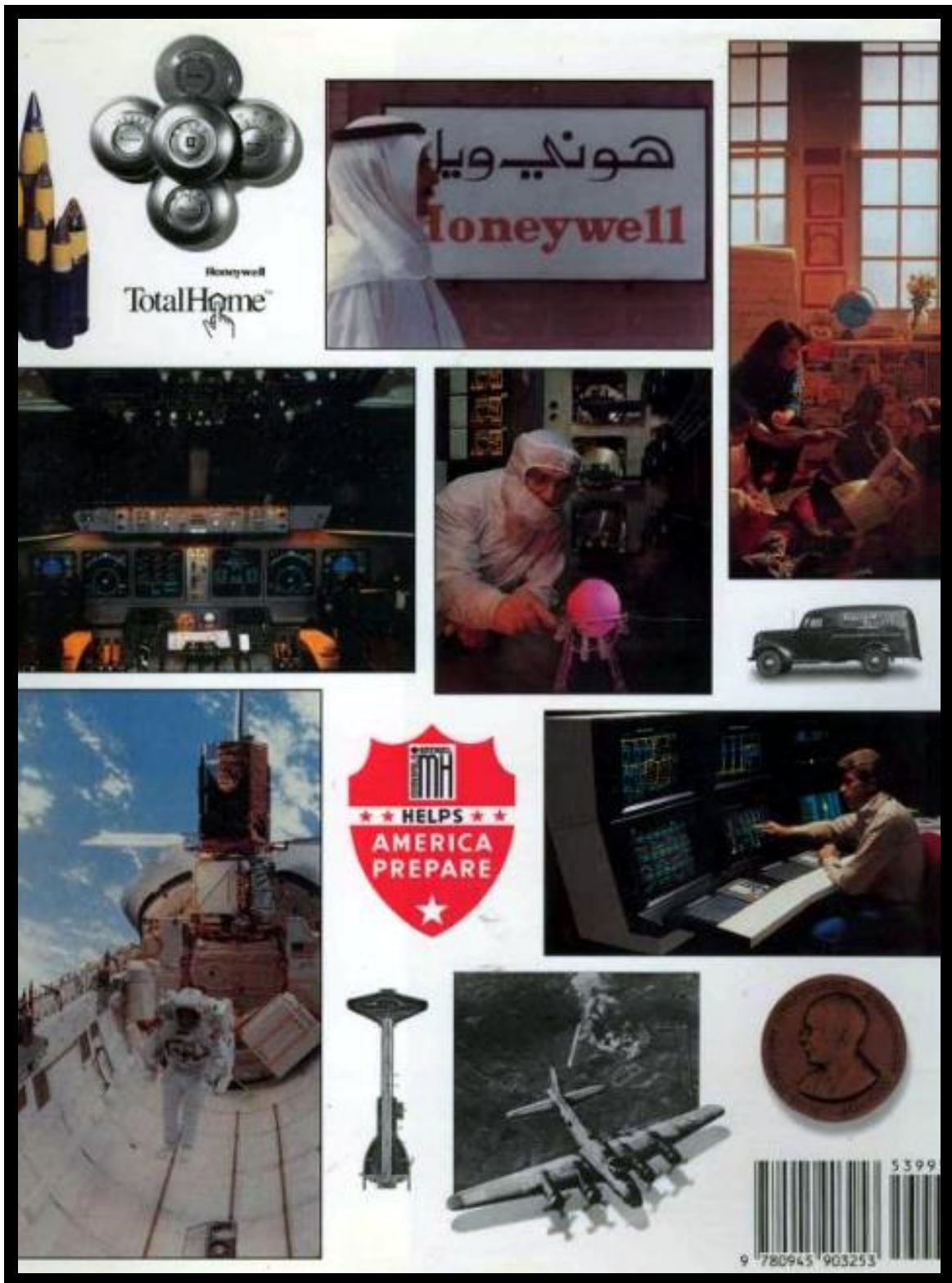
## COMPANIES: HONEYWELL

Tom Sawyer And  
Honeywell



From "The First 100 Years", 1985.

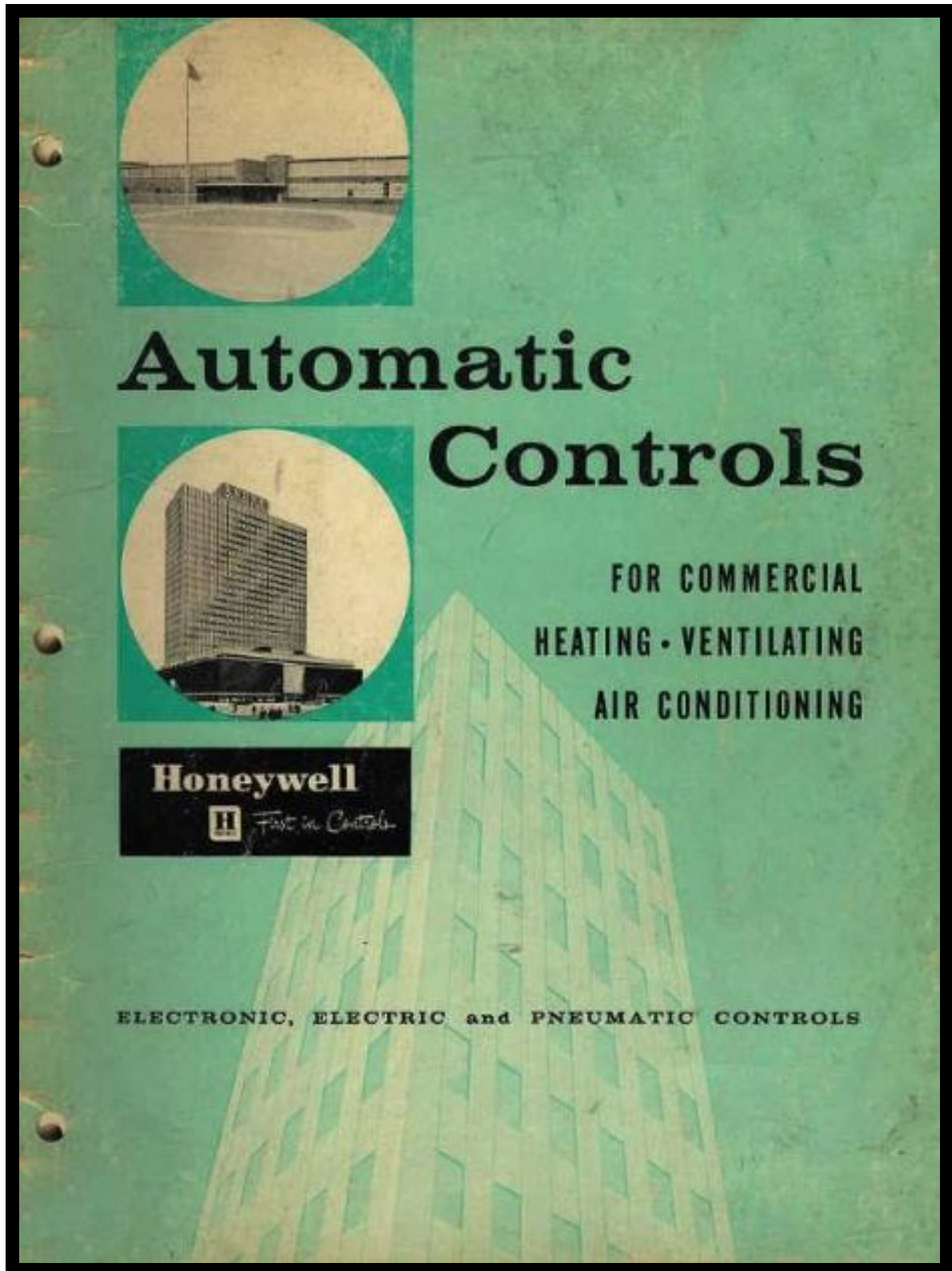
# COMPANIES: HONEYWELL



Back cover of "The Legend of Honeywell", 1995.



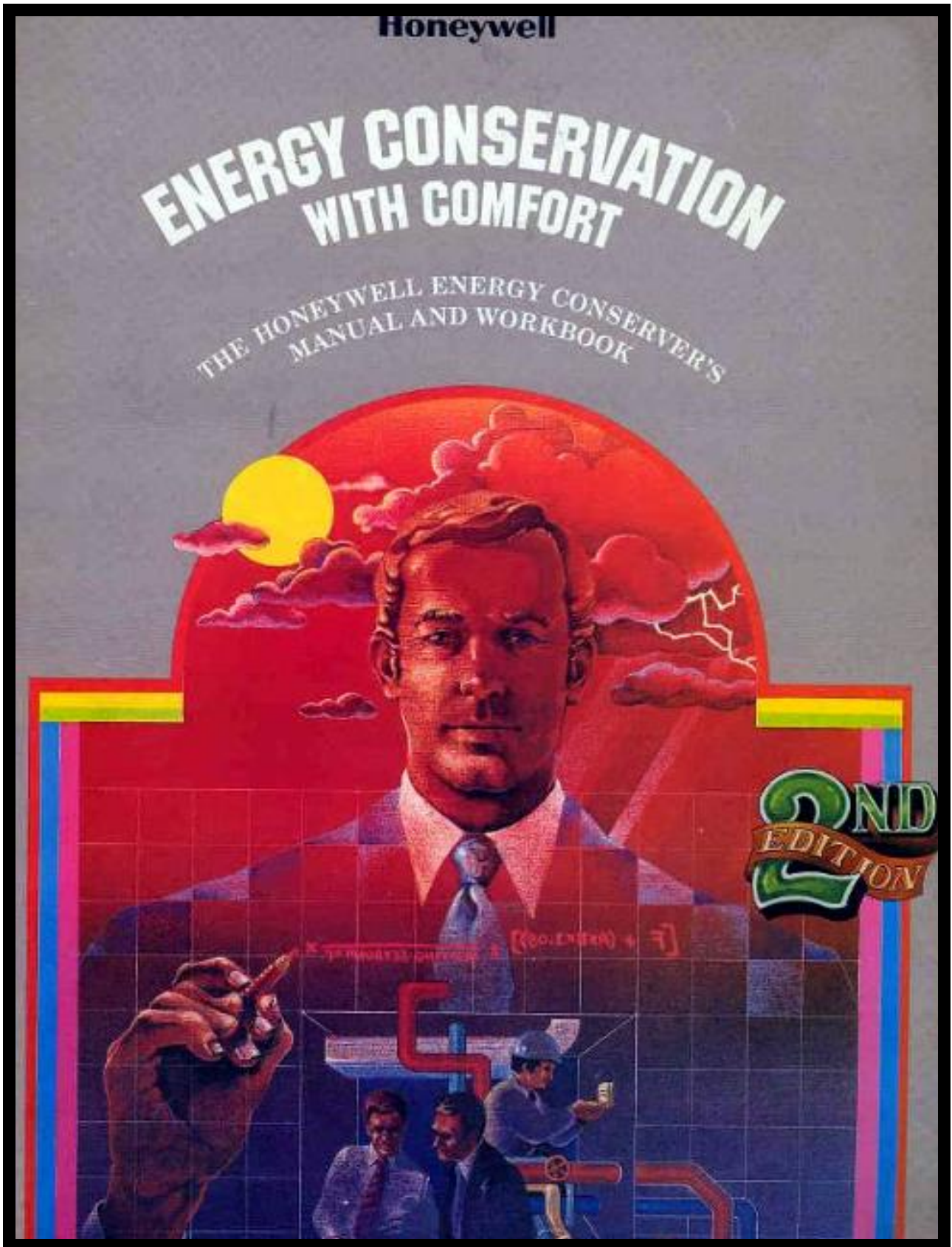
# COMPANIES: HONEYWELL



1959 catalogue.

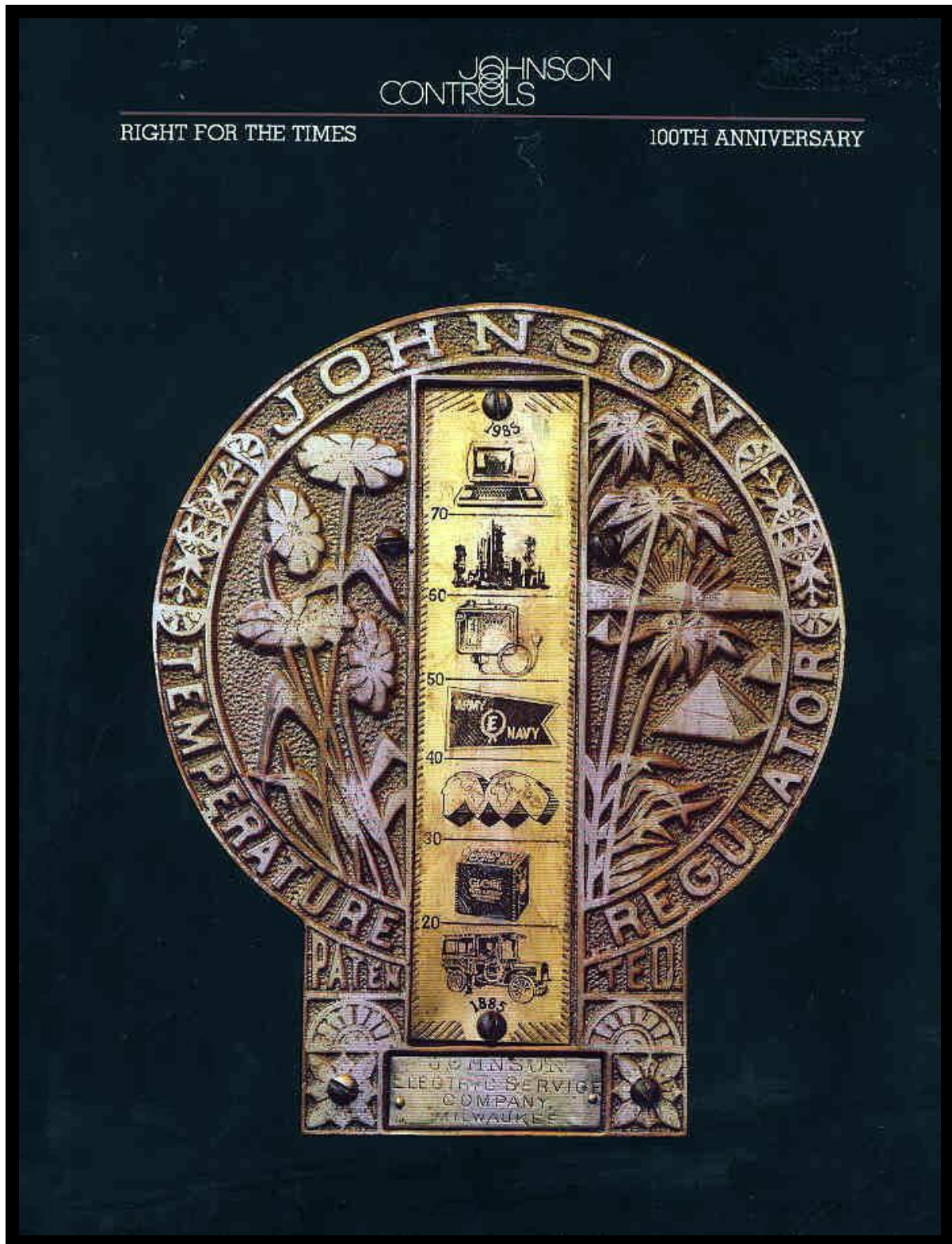


# COMPANIES: HONEYWELL



1979 brochure.

# COMPANIES: JOHNSON



100th Anniversary Brochure in 1985.



## COMPANIES: JOHNSON

**JOHNSON  
AUTOMATIC  
HEAT CONTROL**

1885 1935

**FIFTY YEARS**  
**DEVOTED TO THE PROMOTION OF  
COMFORT, HEALTH AND ECONOMY**

For half a century, the Johnson organization has devoted its entire effort to the manufacture, installation, and improvement of the Johnson System of Temperature and Humidity Control. Through all these years the Johnson Service Company has been the leader in the development of automatic control apparatus for heating, ventilating, and air conditioning.

**S**PECIAL PROBLEMS are not new to Johnson Service Company engineers and installation men. Whatever the means adopted to accomplish heating, cooling, humidification, and dehumidification, there are Johnson devices, tried and tested, to secure the particular effect desired. A back-ground of fifty years of continual development and progress is assurance to architects, engineers, and contractors who refer automatic control problems to the Johnson Service Company. Their clients, the building owners, benefit by the experience of a nation-wide organization devoted to just this one line of business. The Johnson Service Company never has failed to execute any contract entrusted to it.

**JOHNSON SERVICE COMPANY - - MILWAUKEE, WIS.**  
**BRANCH OFFICES IN ALL PRINCIPAL CITIES**  
**INCORPORATED: NOVEMBER 1885**

**This ad prepared by Johnson Service Co., 1355 W. Washington Blvd., Chicago**

50 Years Anniversary in 1935.

# COMPANIES: JOHNSON



Early Johnson thermostat.



# COMPANIES: JOHNSON

**Family Wealth**  
Economy,  
Comfort, Health.

**The Husband Explains.**

Wife—John, dear, how do you account for your present even temper?

Husband—Can't you guess, Mary?

Wife—I can't imagine unless it is our new furnace draft regulator.

Husband—Exactly, Mary. It may seem odd to admit this, but the comfort and economy that has been added to our home by the Johnson Draft Regulator is simply remarkable. It saves vexatious annoyances, and saves money besides. It insures an even temperature, and that means an even temper. An even temper keeps me at home, and completes our domestic happiness.

The moral is plain. How often do not the things which appear insignificant, contribute the largest share towards completeness of life. A moment's reflection only will convince that a

**JOHNSON FURNACE DRAFT REGULATOR**

can effect a decided saving in household expenditures. A thermostat placed in your room automatically regulates your furnace drafts, without taking up your time or attention. This thermostat is specially devised to meet the wants of private families.

Price of the Draft Regulator, complete, put up, \$25.00. For sale by all furnace dealers.

**THE JOHNSON ELECTRIC SERVICE CO.,**  
12 Pearl St., Boston, Mass. 91 Diamond St., Pittsburgh, Pa.  
25-26 Hodges Bldg., Detroit, Mich. 120 Sycamore Street, Milwaukee, Wis.  
Johnson Heat Regulating Co., 104 N. Tenth St., St. Louis, Mo.  
Electric Service Co. of Buffalo, Erie County Bank Building, Buffalo, N. Y.  
Johnson Temperature Controlling Co., 411 Dearborn St., Chicago, Ill.  
Johnson Temperature Regulating Co., 240 Fourth Ave., New York City.  
Philadelphia Electric Service Co., 41 N. 11th St., Philadelphia, Pa.

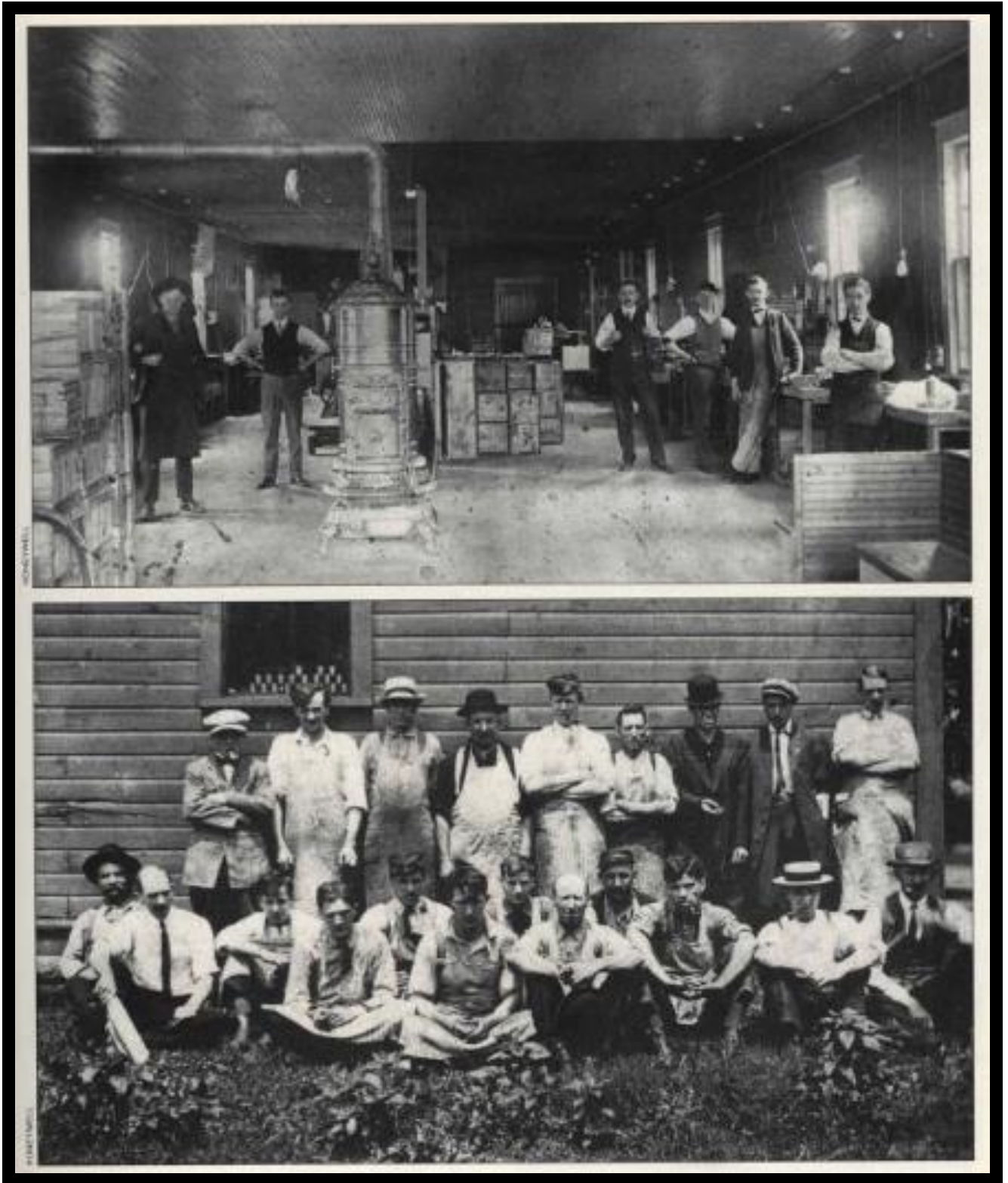
"Family Wealth," Johnson Electric Service Co, McClures magazine 1896.



Johnson sales force 1900.



# COMPANIES: MINNEAPOLIS HONEYWELL



Factory and employees of the Electric Heat Regulator Company in 1909 that went on to become part of Minneapolis Honeywell.



**COMPANIES: MINNEAPOLIS HONEYWELL**

**AUTOMATIC CONTROL SYSTEMS  
FOR HEATING, VENTILATING  
AND AIR CONDITIONING**



**MINNEAPOLIS-HONEYWELL**



# COMPANIES: MINNEAPOLIS HONEYWELL



## JUST SET THE INDICATOR!

*Forget About Drafts, Dampers or Valves*

FROM fall till spring the hand regulated heating plant is a source of almost continuous bother, annoyance and inconvenience. The house is either too warm or too cool; the fire is running away or dying too low; necessitating retuning. Frequent trips to the basement or to adjust damper chains fail to produce considerable home heating. How different is a house with the Minneapolis Heat Regulator. Just set the indicator, forget all about dampers and drafts for coal fire or valves for gas, oil or central plant steam; and have exactly the temperature you want. It's done automatically. The "Minneapolis" takes complete charge of the heating, speeding up and slowing down the fire according to the temperature in the living room. There's no guess work.



The "Minneapolis" operates according to actual temperature, maintaining a steady fire, an even, desirable temperature day and night. If you are out or asleep you get no fuel burning and waste. If you are gone, all or control during your absence you (control your heat) only automatically. The temperature is always right.

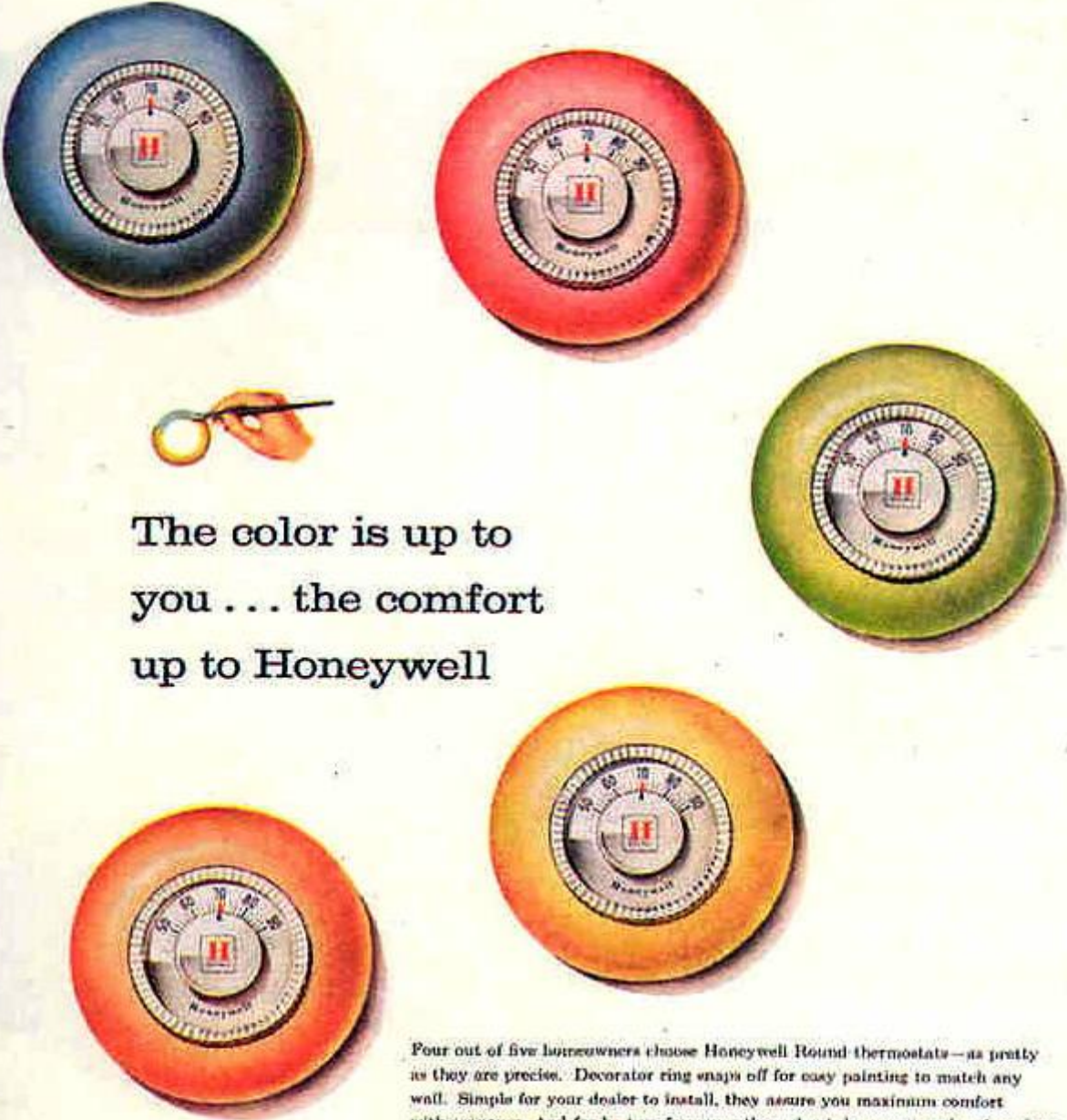
The "Minneapolis" automatically wakes the fire before you get up in the morning. Has the home warm for you to dress and breakfast. All this at a big saving on fuel, or heat, or electricity. Thus, the "Minneapolis" quickly pays for itself in fuel saved and allowed pays you an annual profit.

The "Minneapolis" is the product of a company that for over 21 years has been specializing in mechanical control devices. It is simple, absolutely dependable. Our attractive booklet, "The Proper Operation of the Home Heating Plant," which tells all about the "Minneapolis" shows the various models that will most perfectly suit your individual needs. Mail the enclosed, post-paid today. Take the dry and insure complete heating comfort in your home.

**THE MINNEAPOLIS HEAT REGULATOR**  
ESTABLISHED 1884




For Coal • Coke • Gas • Oil

# COMPANIES: MINNEAPOLIS HONEYWELL



The color is up to you . . . the comfort up to Honeywell

Four out of five homeowners choose Honeywell Round thermostats—as pretty as they are precise. Decorator ring snaps off for easy painting to match any wall. Simple for your dealer to install, they assure you maximum comfort with economy. And for best performance throughout, be sure your heating plant has all Honeywell controls, matched to work together.

		
<b>GAS VALVE</b> turns on gas in gas system when thermostat signals.	<b>PROTECTORLAY*</b> safeguards your oil system from ignition failure.	<b>FAN LIMIT CONTROL</b> controls the fan, shuts off furnace if it gets too hot.

Minneapolis-Honeywell Regulator Company

©1959

The famous "Honeywell Round" thermostat dates from 1959.



# COMPANIES: POWERS REGULATOR

**THE POWERS REGULATOR**  
AS USED WITH  
**HOT BLAST HEATING**  
IN SCHOOLS, CHURCHES & C.

TEMPERATURE OF EACH ROOM CONTROLS ITS  
OWN DAMPER WITH GRADUAL MOVEMENT

**NO ELECTRICITY!**  
**NO COMPLICATION!**

APPLICABLE TO EITHER FORCED  
OR NATURAL DRAFT SYSTEMS.

SEND FOR CATALOGUE.  
**THE POWERS DUPLEX REGULATOR CO.**  
N. E. Office, Oliver St., Boston. 36 Dearborn St., CHICAGO, ILL.  
A. S. GRIFFING IRON CO., JERSEY CITY, N. J., GEN. EASTERN AND SOUTHERN AGENTS.

# COMPANIES: POWERS REGULATOR

VENTILATION. xxiii

---



**THE POWERS**  
**Temperature Regulator**

For controlling Automatically the Temperature of Residences, Schools, Churches and public buildings.  
Particularly adapted to

**VENTILATING WORK.**

Five Thousand in Use!!  
Simple, Durable and Effective!!  
No Electricity!! No Complications!!

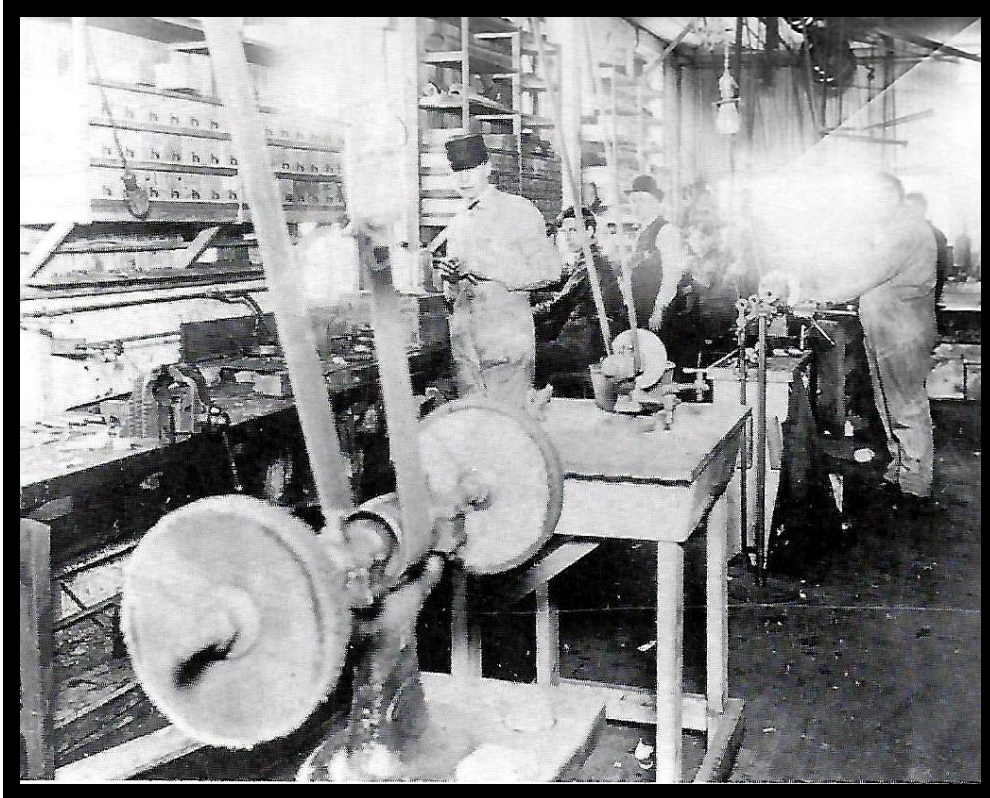
SEND FOR CATALOGUE SPECIFYING WHETHER FOR RESIDENCE OR SCHOOL WORK

**THE POWERS REGULATOR CO.,**  
45 OLIVER ST., BOSTON, MASS.      36 DEARBORN ST., CHICAGO, ILL.  
218 AND 220 THIRD ST., LOUISVILLE, KY.

The A. A. GRIFFING IRON CO., Gen. Eastern and Southern Agents  
Jersey City, N. J.



# COMPANIES: POWERS REGULATOR



Thermostat polishing shop, early 1900s.



The Thermostat.

## TEMPERATURE REGULATED IN LARGE BUILDINGS

Such as Office Buildings, Schools, Hotels, Apartments, etc., without the annoyances and failures of systems heretofore used.

### The Powers System

Has always been known as a simple, practical, and perfect method of regulating temperature. By recent patents we have protected our methods as applied to large work, and can send you a circular more fully describing its application if desired. . . . .

The Powers  
Regulator Company

Send for Catalogue.

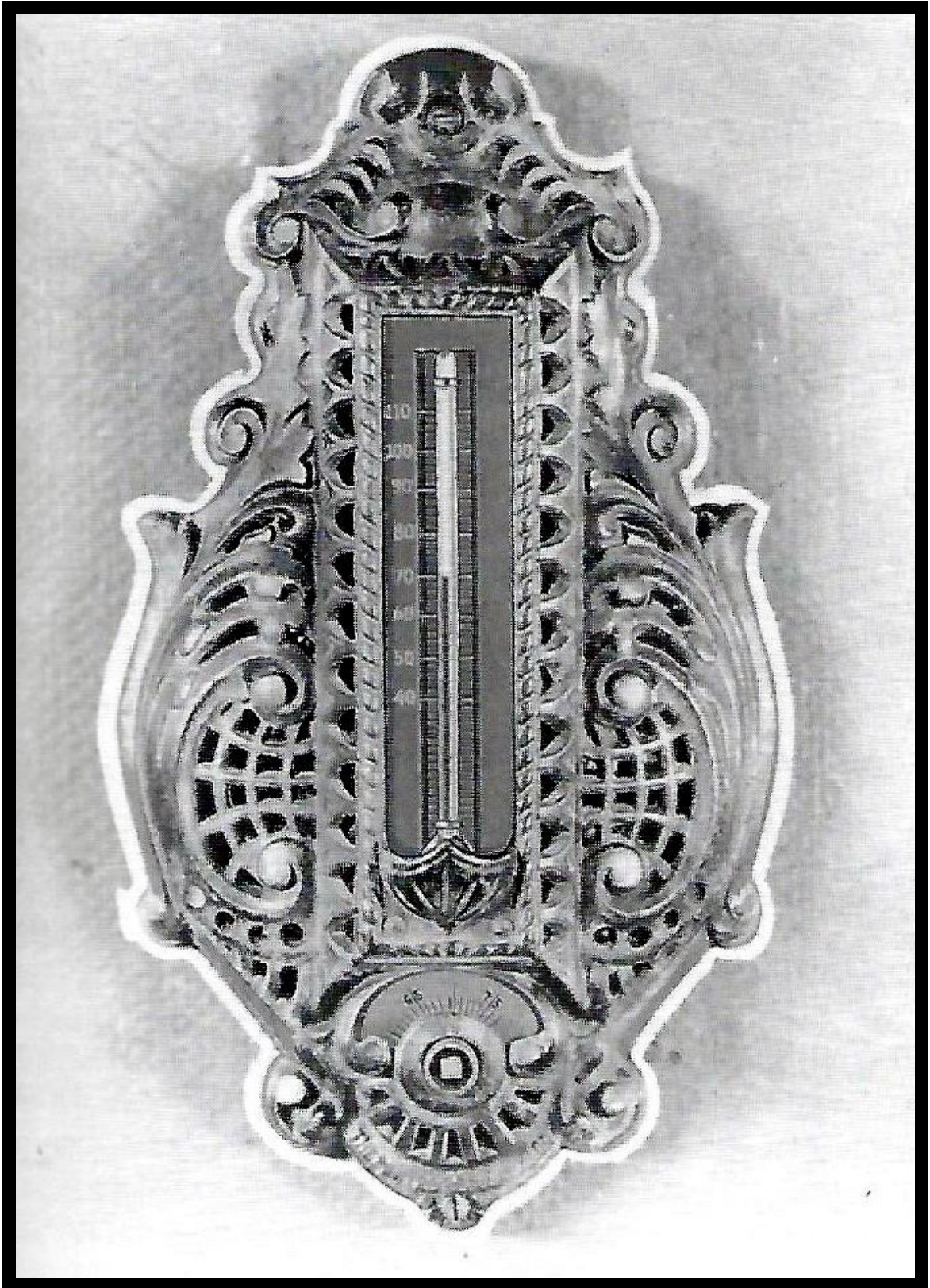
MAIN OFFICE,  
36 DEARBORN STREET,  
Chicago.  
NEW YORK OFFICE,  
54 John St.  
45 Oliver Street, Boston,  
508 Union Trust Building,  
St. Louis.



The Valve.



## COMPANIES: POWERS REGULATOR



Powers thermostat, 1903.



## COMPANIES: SATCHWELL

<p>XPM MOTOR</p>  A black, cylindrical motor with a square top housing and a circular front panel with several screws.	<p>XC CONTROL BOX</p>  A rectangular, light-colored metal control box with a handle on top and mounting brackets on the sides.
<p><i>A Guide to</i> <b>SATCHWELL AUTOMATIC CONTROLS</b></p>	
<p>LE PHOTO-CELL HEADS</p>  Three cylindrical photo-cell heads of different sizes and orientations.	<p><b>XPM Motor.</b> A powerful slow-speed capacitor type reversing motor designed to operate valves or dampers according to the needs of air or immersion thermostats.</p> <p><b>XC Control Box.</b> A two-speed floating control for use in conjunction with the XPM motor; the two units, with appropriate thermostats, make up the Satchwell 'X' floating control system.</p> <p><b>LE Photo-cell Heads.</b> New types for use with Visigard and LER oil burner controls.</p> <p><b>Duotronic Controller.</b> The first proportional plus integral temperature controller for the Heating and Ventilating Industry.</p> <p><b>BMT Controller.</b> For the automatic control of pumped hot water central heating plants on the "small pipe" principle.</p>
<p>DUOTRONIC CONTROLLER</p>  A rectangular control panel with various dials, switches, and a display window.	 A mechanical control device with a vertical cylinder and various pipes and valves, mounted on a circular frame. <p>BMT CONTROLLER</p>

The original Company was Rheostatic dating back to 1926.

## COMPANIES: STAEFA

# There's energy in the air

Exhaust air

Extract air

Return air

Outside air

Supply air

Energy supply

Extract air

Outside air

Energy demand

Heating/  
Cooling

Humidifying/  
Dehumidifying

Energy is concealed in large quantities in the outside air and in the extract air from air conditioning systems. If it is used properly the costs of providing energy for air conditioning systems can be drastically reduced.

The Staefa RDE2 enthalpy controller with maintenance free sensors ensure that the cheapest available energy is always used.

The enthalpy available in the outside air and extract air are compared with the demand from the system. The controller then selects the most economical sequence of operation.

### Trust Staefa for energy saving control

Established in Switzerland in the 1960s.



# HONEYWELL & CIBSE

Warmest  
congratulations to  
CIBSE  
on 100 years service  
to the industry



**From the Honeywell family.**

Honeywell Control Systems Limited, Honeywell House,  
Bracknell, Berkshire RG12 1EB.  
Telephone: 01344 656000

**Honeywell**

Helping You Control Your World

Advertisement from 1997.