Barber-Colman

Since 1894

Centennial Celebration

October 23, 1994

BARBER COLMAN COMPANY

a Siebe company

Welcome

Welcome to Barber-Colman's Centennial Celebration Open House (1894-1994). We are glad you could join us today and hope you enjoy your visit.

Since its beginning in the late 1800s, the Company has been characterized by a spirit of innovation, employee dedication, and a high standard of engineering and manufacturing excellence. The Company has enjoyed many successes throughout its 100 years of existence. In October, 1987, Barber-Colman became part of Siebe, plc. Siebe is a multibillion-dollar, multinational engineering company headquartered in Windsor, England.

As you tour the facility, please keep in mind that the work we do here provides jobs for many thousands of people, some of whom are located in many other countries throughout the world. The Park Plant is not only an important part of the Rockford economy, but it also plays a major role in positioning Barber-Colman as a quality, world-class company.

Thank you again for sharing your day with us. Enjoy your visit.

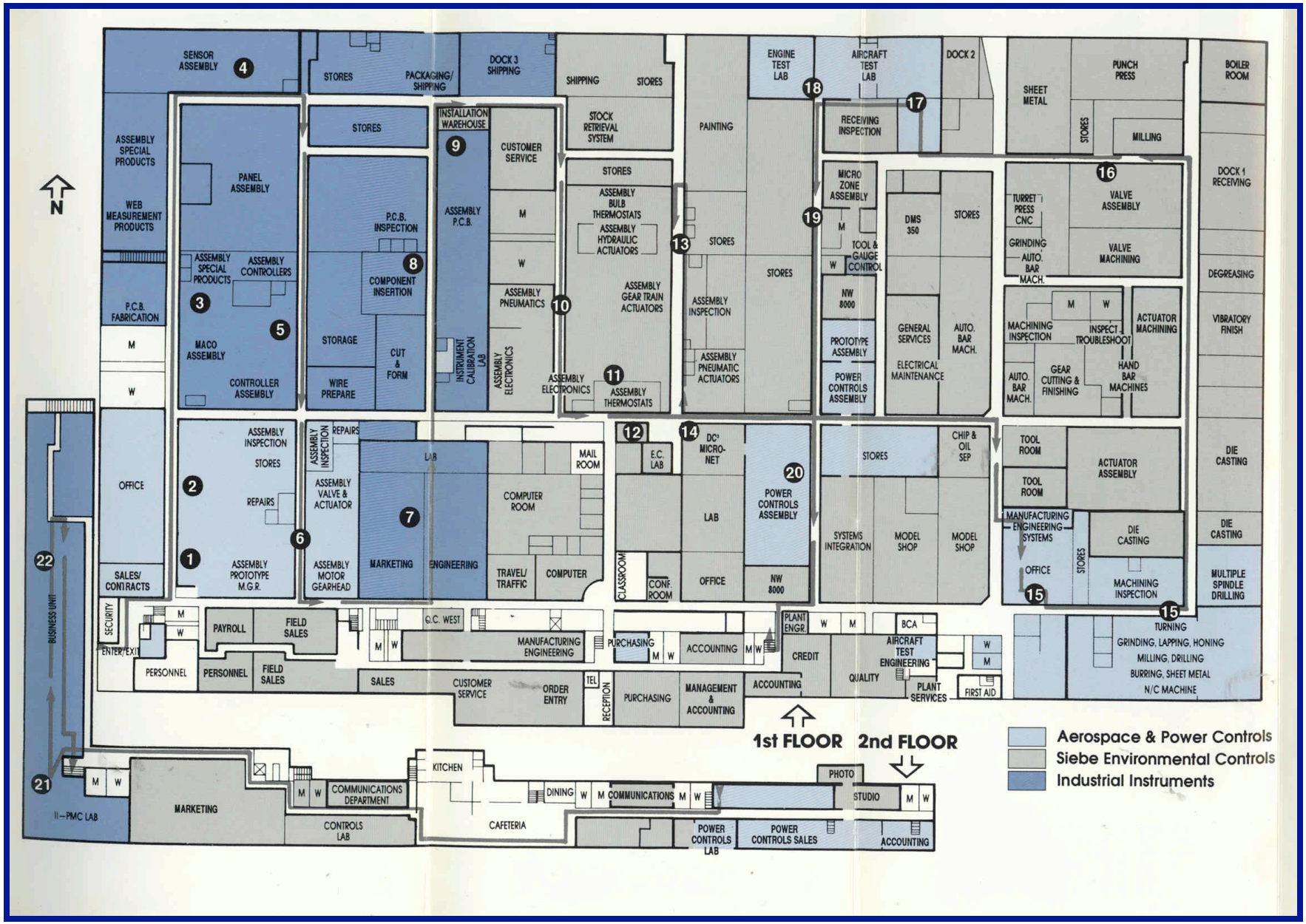
Sincerely,

William A. Cashin, Jr.
President
Siebe Environmental Controls

Elwood J. Meyers
Vice President & General Manager
Aerospace & Power Controls

David W. Miller
Vice President & General Manager
Industrial Instruments

Peter C. Spaulding
Vice President & General Manager
Motors


N
SENSOR ASSEMBLY
4
STORES
PACKAGING/ SHIPPING
DOCK 3 SHIPPING
SHIPPING
STORES
STOCK RETRIEVAL SYSTEM
ENGINE TEST LAB
AIRCRAFT TEST LAB
DOCK 2
18
17
RECEIVING INSPECTION
SHEET METAL
PUNCH PRESS
STORES
MILLING
BOILER ROOM
DOCK 1 RECEIVING
DEGREASING
VIBRATORY FINISH
DIE CASTING
DIE CASTING
MULTIPLE SPINDLE DRILLING
ASSEMBLY SPECIAL PRODUCTS
WEB MEASUREMENT PRODUCTS
PANEL ASSEMBLY
STORES
INSTALLATION WAREHOUSE
9
CUSTOMER SERVICE
PAINTING
STORES
ASSEMBLY BULB THERMOSTATS
ASSEMBLY HYDRAULIC ACTUATORS
ASSEMBLY GEAR TRAIN ACTUATORS
13
STORES
ASSEMBLY INSPECTION
STORES
ASSEMBLY PNEUMATIC ACTUATORS
19
MICRO ZONE ASSEMBLY
M
W
TOOL & GAUGE CONTROL
NW 8000
PROTOTYPE ASSEMBLY
POWER CONTROLS ASSEMBLY
DMS 350
STORES
GENERAL SERVICES
ELECTRICAL MAINTENANCE
AUTO. BAR MACH.
16
TURRET PRESS CNC
GRINDING AUTO. BAR MACH.
VALVE ASSEMBLY
VALVE MACHINING
M
W
MACHINING INSPECTION
INSPECT TROUBLESHOOT
ACTUATOR MACHINING
AUTO. BAR MACH.
GEAR CUTTING & FINISHING
HAND BAR MACHINES
P.C.B. FABRICATION
M
W
ASSEMBLY SPECIAL PRODUCTS
ASSEMBLY CONTROLLERS
3
MACO ASSEMBLY
5
CONTROLLER ASSEMBLY
P.C.B. INSPECTION
8
COMPONENT INSERTION
STORAGE
CUT & FORM
WIRE PREPARE
INSTRUMENT CALIBRATION LAB
ASSEMBLY P.C.B.
ASSEMBLY ELECTRONICS
M
W
ASSEMBLY PNEUMATICS
10
ASSEMBLY ELECTRONICS
11
ASSEMBLY THERMOSTATS
12
E.C. LAB
14
DC³ MICRO-NET
LAB
OFFICE
NW 8000
20
POWER CONTROLS ASSEMBLY
STORES
CHIP & OIL SEP
SYSTEMS INTEGRATION
MODEL SHOP
MODEL SHOP
TOOL ROOM
TOOL ROOM
ACTUATOR ASSEMBLY
MANUFACTURING ENGINEERING SYSTEMS
DIE CASTING
OFFICE
STORES
MACHINING INSPECTION
15
15
TURNING
GRINDING, LAPPING, HONING
MILLING, DRILLING
BURRING, SHEET METAL
N/C MACHINE
OFFICE
SALES/ CONTRACTS
ASSEMBLY INSPECTION
STORES
REPAIRS
2
ASSEMBLY PROTOTYPE M.G.R.
1
ASSEMBLY INSPECTION
REPAIRS
ASSEMBLY VALVE & ACTUATOR
6
ASSEMBLY MOTOR GEARHEAD
LAB
7
MARKETING
ENGINEERING
MAIL ROOM
COMPUTER ROOM
TRAVEL/ TRAFFIC
COMPUTER
CLASSROOM
CONF. ROOM
22
BUSINESS UNIT
SECURITY
ENTER/EXIT
M
W
PERSONNEL
PAYROLL
FIELD SALES
PERSONNEL
FIELD SALES
G.C. WEST
MANUFACTURING ENGINEERING
SALES
CUSTOMER SERVICE
ORDER ENTRY
TEL
RECEPTION
PURCHASING
MANAGEMENT & ACCOUNTING
PURCHASING
M
W
ACCOUNTING
M
W
ACCOUNTING
PLANT ENGR.
W
M
BCA
CREDIT
AIRCRAFT TEST ENGINEERING
QUALITY
PLANT SERVICES
FIRST AID
W
M
1st FLOOR
2nd FLOOR
21
II–PMC LAB
M
W
MARKETING
M
W
COMMUNICATIONS DEPARTMENT
CONTROLS LAB
KITCHEN
CAFETERIA
DINING
W
M
COMMUNICATIONS
M
W
PHOTO
STUDIO
M
W
POWER CONTROLS LAB
POWER CONTROLS SALES
ACCOUNTING
Aerospace & Power Controls
Siebe Environmental Controls
Industrial Instruments

Barber-Colman Divisions

The **Aerospace & Power Controls Division** is comprised of three operating units, Aircraft Products, Power Controls, and Tech Development Inc. **Aircraft Products** designs and manufactures electronic control systems, electromechanical actuators, and pneumatic valves for the general aviation, commercial, and military aircraft markets. **Power Controls** designs and manufactures complete engine governing control systems and components that satisfy a wide range of engine control requirements for diesel, gasoline, natural gas, and gas turbine engines. Barber-Colman precision governors are available installed as original equipment by most engine manufacturers or as retrofit kits from a worldwide distributor network. **Tech Development Inc.,** Barber-Colman's wholly-owned subsidiary in Dayton, Ohio, produces aircraft turbines, as well as vehicular air starters.

Centennial Tour Highlights

Numbered stops refer to the tour map.

Stop

2 Control System Assembly
This climate-controlled assembly room is where all aircraft control system final assembly is done. For aircraft equipment, cleanliness is essential.

6 Actuator & Air Valve Assembly

15 CAD Drafting & CNC Machining
Computer-aided drafting can be seen here and how it is integrated with CNC machining. This is the largest congregation of computer numerically-controlled machines at Barber-Colman's Rockford area facilities.

17 Pneumatic Test Lab
This is one of the finest pneumatic test facilities in the United States. Barber-Colman equipment is thoroughly tested here before being installed on aircraft.

18 Engine Test Lab
All Power Control's engine control equipment is tested here before being put in production.

20 Power Controls Assembly

Siebe Environmental Controls offers effective solutions to make businesses run better through control and management of building mechanical systems, energy usage, and operating efficiency. Siebe Environmental Controls designs, manufactures, installs, and services the sophisticated, easy-to-use NETWORK 8000®, DMS™, and the MicroSmart™ Control Network

Barber-Colman Divisions (cont.)

Facility Management Systems and the largest variety of building control components in the Industry. The line of control products includes pneumatic, hydraulic, electric, and electronic controllers; valve and damper actuators; temperature/humidity sensors; and valves.

Centennial Tour Highlights

Numbered stops refer to the tour map.

Stop

10 Electronic Thermostat Cell
With cellular manufacturing, thermostat production lead time was reduced from six weeks to six minutes.

11 Sensor Cell
With cellular manufacturing, sensor production time was reduced from eight weeks to 24 hours.

12 DVAV Transducer
This is a high-tech, pressure-sensing device manufactured under the most rigid microscopic conditions.

13 Hydraulic Actuator Value Center
A self-contained hydraulic actuator factory with engineering, planning, and production all in one area.

14 MicroNet 2000™
The newest controller family with architecturally styled thermostats are made with one-piece manufacturing flow.

16 Valve Value Center
A self-contained valve factory with engineering, planning, and production all in one area.

19 MICROFLO™/MICROZONE®/PEM™ Cell
These digital controllers are the latest conversion from batch to cellular manufacturing.

The **Industrial Instruments Division** designs, manufactures, and markets specialized electronic control components and systems for plastics machinery, heat treating furnaces, and industrial and commercial thermal process control applications such as metals, ceramics, glass, and semiconductors. Products include single and multi-zone temperature and process controllers, sensors, valves, programmable logic controllers and dedicated programmable plastics machinery control systems for injection, extrusion, and blow molding applications. The Division also manufactures and distributes systems for thickness measurement and control for plastics sheet film, converting, coating, and related industrial manufacturing applications.

Centennial Tour Highlights

Numbered stops refer to the tour map.

Stop

3 MACO Assembly
Dedicated, programmable, plastics machinery control systems.

4 Sensors Assembly
Sensors for industrial processes and plastics machinery.

5 Controller Assembly
Single and multizone temperature and process controllers.

7 Marketing & Engineering

8 Component Insertion Assembly
Automatic insertion of printed circuit board components takes place here.

9 Printed Circuit Board Assembly
Completed printed circuit boards are used to manufacture systems and controller products.

21 Customer Demonstration Room
Thermal process and plastics machinery control products are on display here.

22 Administrative Offices

The **Motor Division** designs and produces a wide range of subfractional alternating current and direct current motors. These include dc permanent magnet motors, ac shaded pole motors, "pancake" and inline gearheads, and plastic gearheads. For over 60 years, the Motor Division has met customer motion control needs by tailoring ac and dc motors and gearmotors for individual applications. These applications include vending machines, office copiers, computer printers, automatic bank teller equipment, currency changers, medical x-ray machines, and peristaltic pumps.

Centennial Tour Highlights

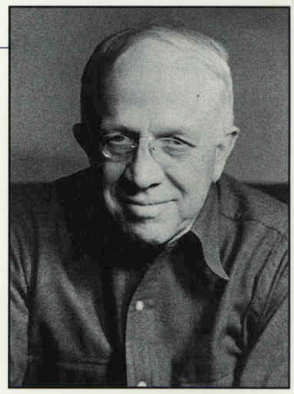
Numbered stop refers to the tour map.

Stop

1 Rowe Vending Machine
Each of these Rowe vending machines, used worldwide, has 25 Barber-Colman food dispenser motors.

The sales and engineering offices for the Motor Division are located in the former Corporate Headquarters facility in Rockford. Manufacturing operations are located in Crystal Lake, Illinois, and Darlington, Wisconsin. Although these facilities are not on the Centennial Tour, like the other divisions on the Tour, the Motor Division is a major contributor to the success of Barber-Colman Company.

Howard D. Colman



Barber-Colman Company was founded by Howard D. Colman. Mr. Colman was born in Waukesha, Wisconsin, on July 9, 1873. The son of a Methodist minister, he received his education in the schools of various towns and cities in which his father served. "One of his father's pastorates was in the town of Beaver Dam, Wisconsin, in which there was located a small cotton mill. The Colmans were neighbors to the superintendent of this mill, and it was through him the boy of about 16 or 17 made his first contact with the textile industry. This superintendent, whose name is not known, pointed out to the boy the need of a machine for drawing the warp threads into eyes of the loom harness. The boy's imagination was fired, and he immediately started to work on the idea, and built of wood a small model to illustrate the principles he had in mind."

Sometime later, Mr. W. A. Barber, a lumberman from Warrens, Wisconsin, and father of one of Mr. Colman's schoolmates, became interested in his idea and provided the resources necessary for further development. "Mr. Barber loaned him $100.00, and in 1891, the lad, now 18-years-old, proceeded to make a better model of iron and steel."

After much more refinement, and further assistance from Mr. Barber, his warp drawing machine was tried out in a small cotton mill in Janesville, Wisconsin. "The results were sufficiently encouraging to warrant the building of a more complete machine which was eventually tested at Boott Mills...in...Massachusetts." In 1893 Mr. Colman came to Rockford, Illinois, where he had located a machine shop, the Spengler Brothers, capable of doing the class of work he had found necessary. About 1894, "he invented the check pump, a device for measuring milk, which proved very useful in the numerous creameries that dotted Wisconsin. This was the first patent issued to Mr. Colman and also the first device which gave the young company of Barber & Colman any financial returns."

On his trip to Boott Mills, Mr. Colman noted the time-consuming task to hand tie the hundreds and hundreds of yarn ends or warp threads in a sheet of cloth. It was here that "he conceived the idea of a hand knotter for spooler girls.... This little machine was amazingly successful and by July, 1901, Spengler Bros. was turning them out at the rate of 500 per month." So successful was this device "that branch offices were opened in Boston, Massachusetts, and Manchester, England, with resident representatives in Atlanta, Georgia, Dresden, Germany, and Lille, France.... In 1900, among other projects, he started work on automatic spooling and warping devices, and during the following years many different schemes were considered and worked upon, but it was not until 1912 that the first model of the ...Barber-Colman automatic spooler was installed...." This was one of his greatest inventions.

"While he never attended an engineering school, he ranked among the first engineers in the country, and in 1935 the Franklin Institute awarded Mr. Colman the Longstreth Medal for a most outstanding contribution to the textile machinery art, as represented by the automatic spooler. He started business alone with an idea, and left behind (in 1942) an organization employing approximately 3000 men and women.... Space is too short to give a list of his inventions, but they covered many fields outside of the textile art. He was a rugged individualist, an inventive genius, a sound and conservative businessman, and a leader who by his own tireless example inspired all who came in contact with him. He set high standards of workmanship, individual performance, and business conduct. Barber-Colman Company stands as a monument to his genius and ability."

Quoted passages are from the booklet, *Howard D. Colman, 1873-1942*

Printed in U.S.A. F-22210-1