MAYO CLINIC

# Rochester, Minnesota: Mayo Clinic, a Corn Cob Water Tower, and a Remarkable Impact on Medical and Military Aviation

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MN Council of Airports Conference
April 6, 2022

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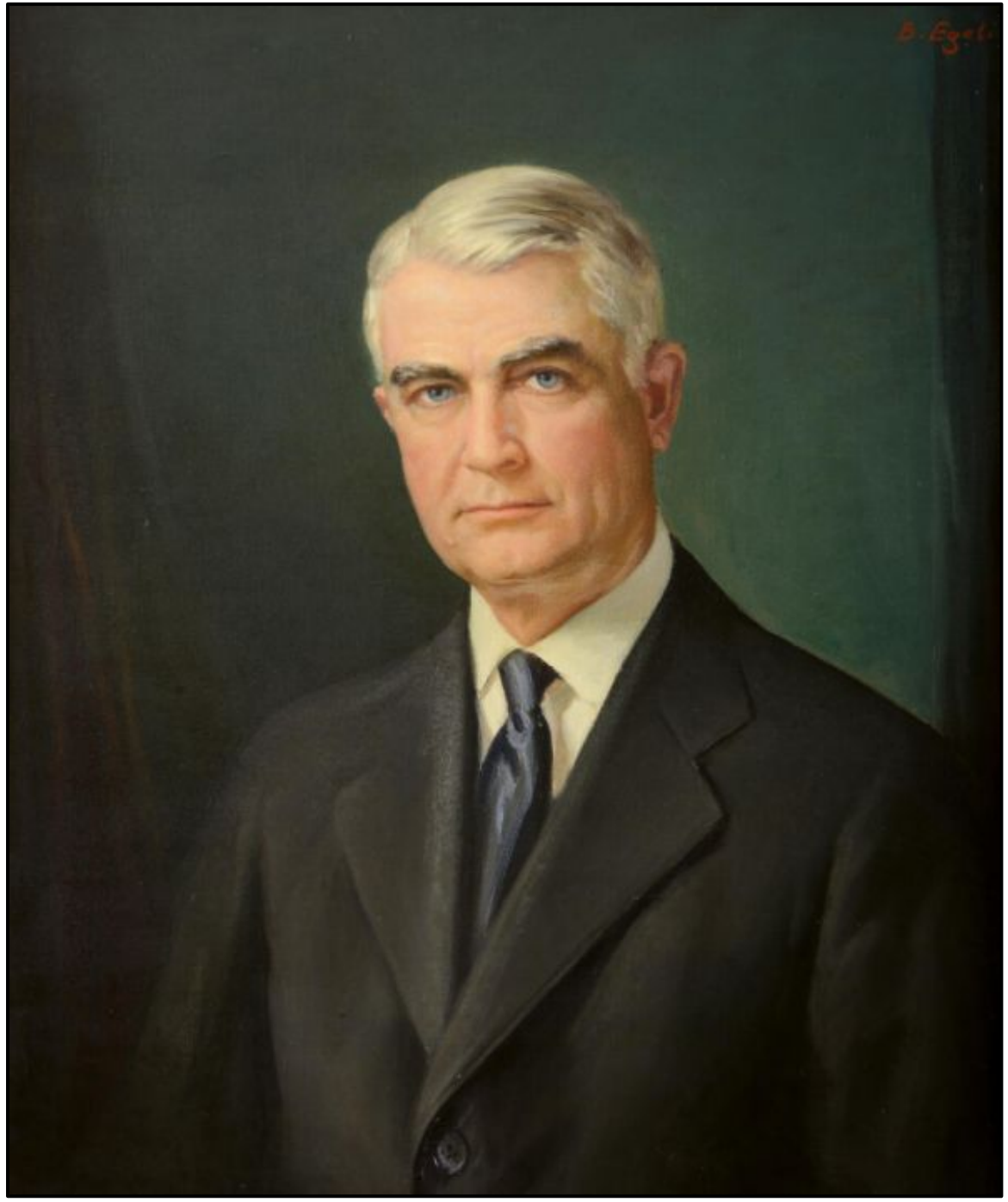
# 1922

“We must provide the capability for people to travel to Rochester to receive medical services.”

W.J. Mayo



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# 1923

- First set of horse-drawn ambulance carriages in Minnesota

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# 1924

- Three Pullman ambulance cars purchased by the Mayo brothers
- Specifically designed with medically-equipped bedrooms and large side doors
- Most patients provided their own private-duty nurses, but Mayo provided nursing services upon request
- Given to the Chicago & Northwestern Railway for Mayo and University of Minnesota patients traveling on the line from Chicago to Minneapolis

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# 1926

“Airplanes are the best long-distance mode of transit for the ill.  Gentlemen, we must have an airplane with the ability to move patients.”

W.J. Mayo

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# 1927

“Transportation is the life blood of Rochester (and Mayo).”

W.J. Mayo

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# 1928

- June 10:  Thomas Paine brought from Sioux City, Iowa by Jaimeson Airline in an Eaglerock long-wing plane modified to include a stretcher. Landed in a west Rochester hayfield. Mr. Paine recovered in 4 weeks from pneumonia.
- June 11:  First Rochester Municipal Airport opened 1 mile west of St. Marys Hospital on land near that hayfield.  It was owned by T.J. Moore, new president of Rochester Air-ways.  Marshy and frequently foggy.

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# 1928

- July 12:  The Drs. Mayo, A.J. Lobb, and H.J. Harwick determined that the current airport location would not serve the needs of the community. Allocated $55,000 to build a new airport.
- July 13:  First commercial flight arrives.  Jefferson Airways Ford Tri-Motor links to St. Paul (45-minute flight).
- November 2:  Airport abandoned.

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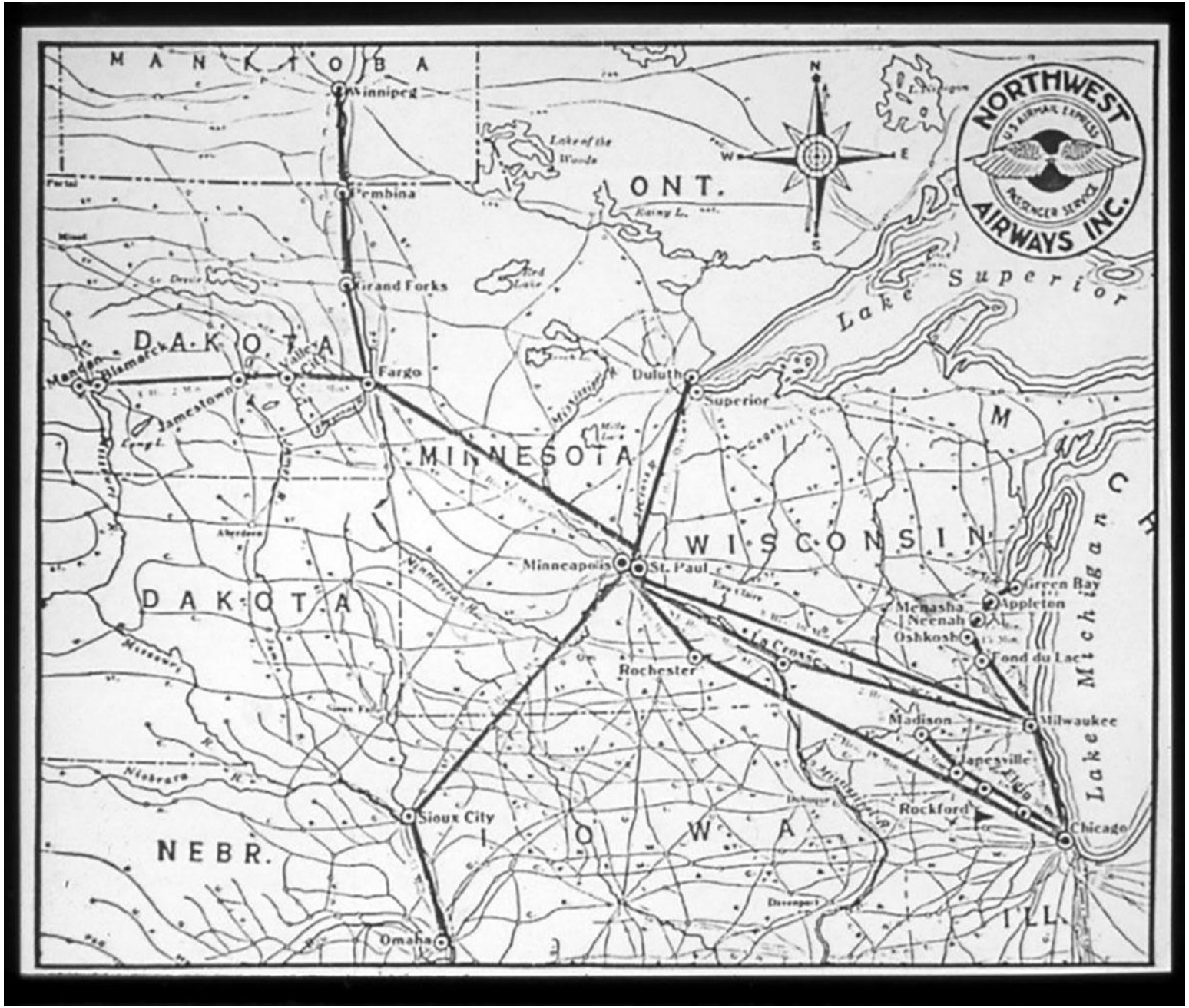
# 1928

- July 20:  Decision made to build new municipal airport in SE Rochester; Rochester Airport Company formed to oversee it
- Two 3,500-foot grass strips
- November 22:  First commercial flight.  Universal Airways' Jennie, with service to St. Paul and Minneapolis, and Northwest Airlines with Ford Tri-motor service to Chicago


NORTHWEST
AIRWAYS INC.
MANITOBA
Winnipeg
Pembina
ONT.
Grand Forks
DAKOTA
Bismarck
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Duluth
Superior
Lake Superior
MINNESOTA
WISCONSIN
Minneapolis
St. Paul
Green Bay
Appleton
Menasha
Neenah
Oshkosh
Fond du Lac
La Crosse
Rochester
Madison
Milwaukee
Janesville
Rockford
Chicago
Lake Michigan
Sioux City
IOWA
NEBR.
Omaha
ILL.

# 1929

- Northwest Airlines integrates failing Jefferson Airways into its system
- Flies 192 people in 1929 to and from Rochester
- Dedication of new airport matched with Rochester's Diamond Jubilee festivities on June 11:  C.H. Mayo delivers dedication address to a crowd of 10,000

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# 1930

- Airmail comes to Rochester on March 8
- Delivered 10,000 lbs of mail in 1930 with 2-5 daily flights along Minneapolis-to-Kansas City line
- Two runways graded (one of these at 5,400 feet in length). Portable search light could be plugged into outlets at either end of North-South runway
- In July 1931, the infamous Rochester corn cob tower was built by Chicago Bridge & Iron Company for a local cannery, promptly becoming a key landmark for inbound pilots (1,500 feet to the terminal on 110 degree heading)

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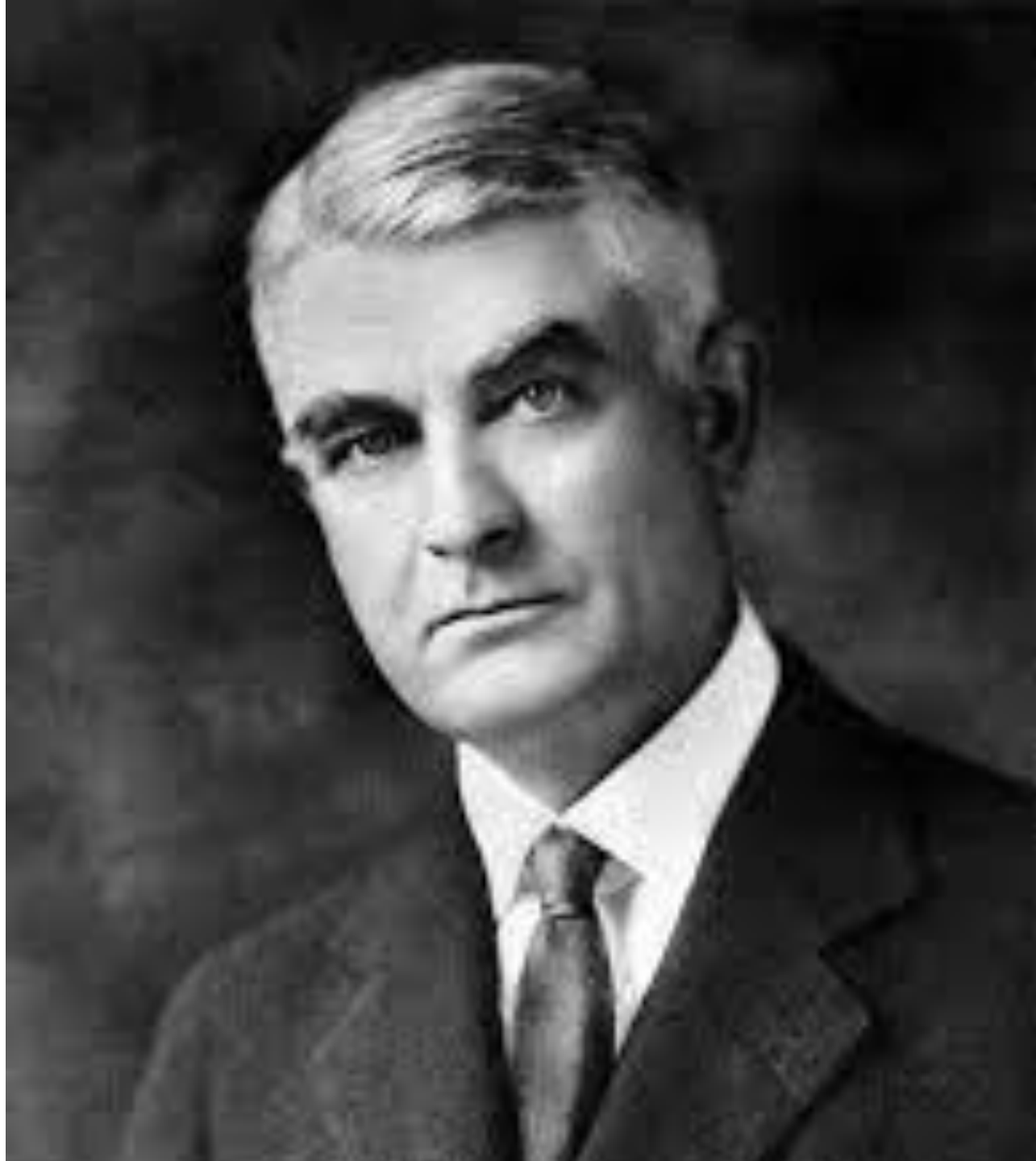
# 1938

- DC3's begin to land on grass runways
- 2 million candlewatt lamp installed on Plummer Building
  - 1.4 miles southeast (140 degrees) to airport
- April's thaw and an early November wet slush/snowstorm damaged several planes

# 1939

- June 23:  A very ill W.J. Mayo asks Mr. Lobb what should be done to improve the airport.  Calls emergency meeting of the Rochester Airport Co. and requests paved runways.  They, of course, approve and Mayo Foundation fully funds the new paved runways.
- W.J. Mayo died July 28, 1939



# 1939

- Lester Doan (NWA pilot), Dr. W.R. Lovelace (fellow), and “Dr. W.M. Boothby (Mayo consultant) ascend in pressure chamber to 40,000 feet altitude in 10 minutes and down in 5.5 minutes using Mayo high-altitude oxygen mask
- This integration of aviation and extreme physiology interest leads to the start of remarkable new testing and knowledge about pilot and plane capabilities during WWII . . . and ultimately into space

# 1938-1943: DEVELOPMENT OF OXYGEN MASK

- 1938: Drs. Walter Boothby, W. Randolph Lovelace, and Arthur Bulbulian, each a commissioned U.S. Army reservist, formed the U.S. Army's Aero Medial Unit at Mayo Clinic and develop the BLB mask for delivering oxygen to patients
- 1939: The BLB mask is designated the A-7 mask by the Army and tested at Wright Army Air Base in Dayton
- May 10, 1939: Northwest Lockheed 14H flies MSP to Boston at 23,000 with BLB and pilots Mal Freeburg and Erick Paselk and oxygen
  - 1875: Gaston Tissandier balloon to 21,000; two deaths Times had changed.
- January 1941: Army and Mayo Aero Medical Unit improve mask to A-14: frost proof, microphone, eat and talk
- 1943: Colonel Lovelace, aboard a B-17 in Washington state, climbs to 40,200 and jumps . . . and lives!

*The Type B-8 winter helmet of 1944 showing attachment of the Type A-14 oxygen mask by means of snaps or studs along the front edge. (SI Photo A4855E)*

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# 1940

- Busiest private airport in America – 1,500 passengers
- “New” Rochester Airport (with paved runways) dedicated August 4: American Airlines’ Flagship christened the “Minnesota,” and Northwest Airlines DC3 christened the “City of Rochester”
- Northwest Airlines opens full-time office in Rochester
- Flights to Des Moines, Kansas City, Tulsa, Chicago, Minneapolis, St. Louis

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# 1940's

- 1941:  Radio range and communication station implemented
- 1942:  Weather station and receiving station for Russia-bound P-39 Kittyhawks (Warhawks) and P-63 Kingcobras that were produced in Niagara Falls.  Ferrying route went:
  - South Bend, IN
  - Rochester, MN
  - Great Falls, MT
  - Fairbanks, AK
- WASPs ferried 2,397 planes to Fairbanks, then turned over to Russia women who piloted them to the Eastern Front
- 1942:  29th Flying Training Wing of the US Army Air Forces begin glider training in Rochester with Douglas C-47s and Waco CG-4s

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# Aircraft of 1942 in Rochester

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# 1940’S

- 1943:  Federally-operated control tower
- July 1944:  Gopher Aviation opens in Rochester; large repair facility from Chicago to California
- July1944:  Braniff Airlines begins service
- 1945:  Mayo Foundation and Rochester Airport Company turn airport over to city. Rochester Airport Co. retained to manage airport

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# 1940-1944: Development of the G-Suit

- Drs. Earl H. Wood, Edward H. Lambert, Edward J. Baldes, and Charles F. Code study the effects of acceleration in aviation for the military using the human centrifuge.
- Develop the pressurized anti-blackout suit and advocate Valsalva breathholding (M-1 maneuver) to maintain blood flow to the brain during high-G maneuvers.

Federation Proceedings 3:327-344, 1946

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# Mayo Clinic Aero Medical Unit

- Established 1931
  - High-Altitude Laboratory
  - Acceleration Laboratory
- Giants in physiology and medicine
  - Earl Wood, M.D.
  - Ed Lambert, M.D.
  - Randy Lovelace, M.D.
  - Walter Boothby
  - David Clark (David Clark Company)

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# THE MAYO AERO MEDICAL UNIT: A REMARKABLE STORY

https://history.mayoclinic.org/books-films/heritage-films/reaching-new-heights-secret-stories-of-the-mayo-clinic-aero-medical-unit.php

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# 1950's

- Team led by Drs. Earl H. Wood and John Ulrich collaborates with NASA to study:
  - the effects of gravity, lift-off and re-entry on chimpanzees and humans
  - Methods to destroy bacteria to prevent contamination of outer space (outbound) and the Earth (inbound)
- Rochester Municipal Airport rededicated to "Lobb Field" September 29, 1952 by Mr. Harry J. Harwick (on the day of his retirement from Mayo)
- Ozark Airlines begins service to Rochester in April 1957

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# 1950's

- The jet age has arrived.  City needs a bigger airport. Site selected 8 miles south of downtown.
- City returns Lobb Field to Mayo.  In return, Mayo provides city with $500,000 to help purchase 2,000 acres for $4.5 million.  Construction begins April 1957.
- Rochester Airport Co. to manage for 10 years.
- Service begins September 23, 1960 – 75,792 passengers that year at Rochester Airport(s).
- Don Swenson, first Rochester Airport manager in May 1936, continues in that capacity until 1967.

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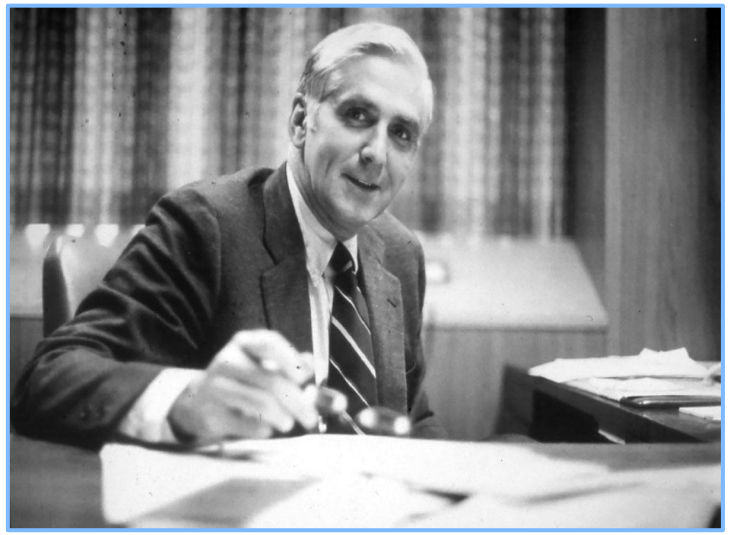
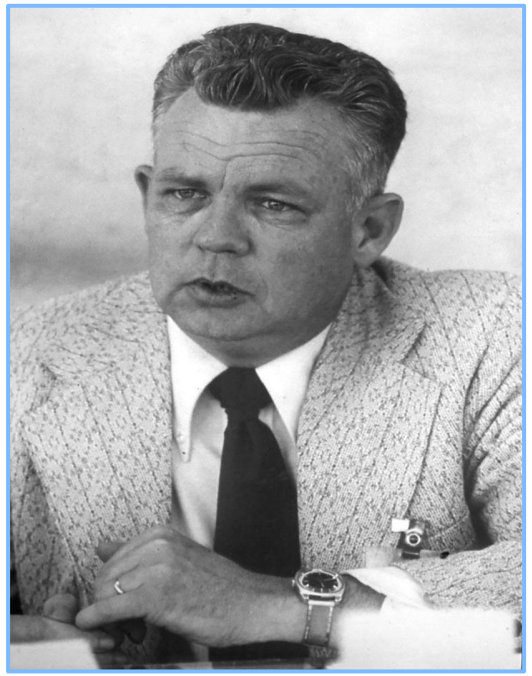
# 1960's

- Mark G. (Jerry) Brataas
  - Joined Rochester Airport Co. in 1962
  - President in 1966
  - Director of Ozark Airlines in 1969
- Lowell H. Helgerson
  - Assistant airport manager in 1961
  - Full manager in 1967





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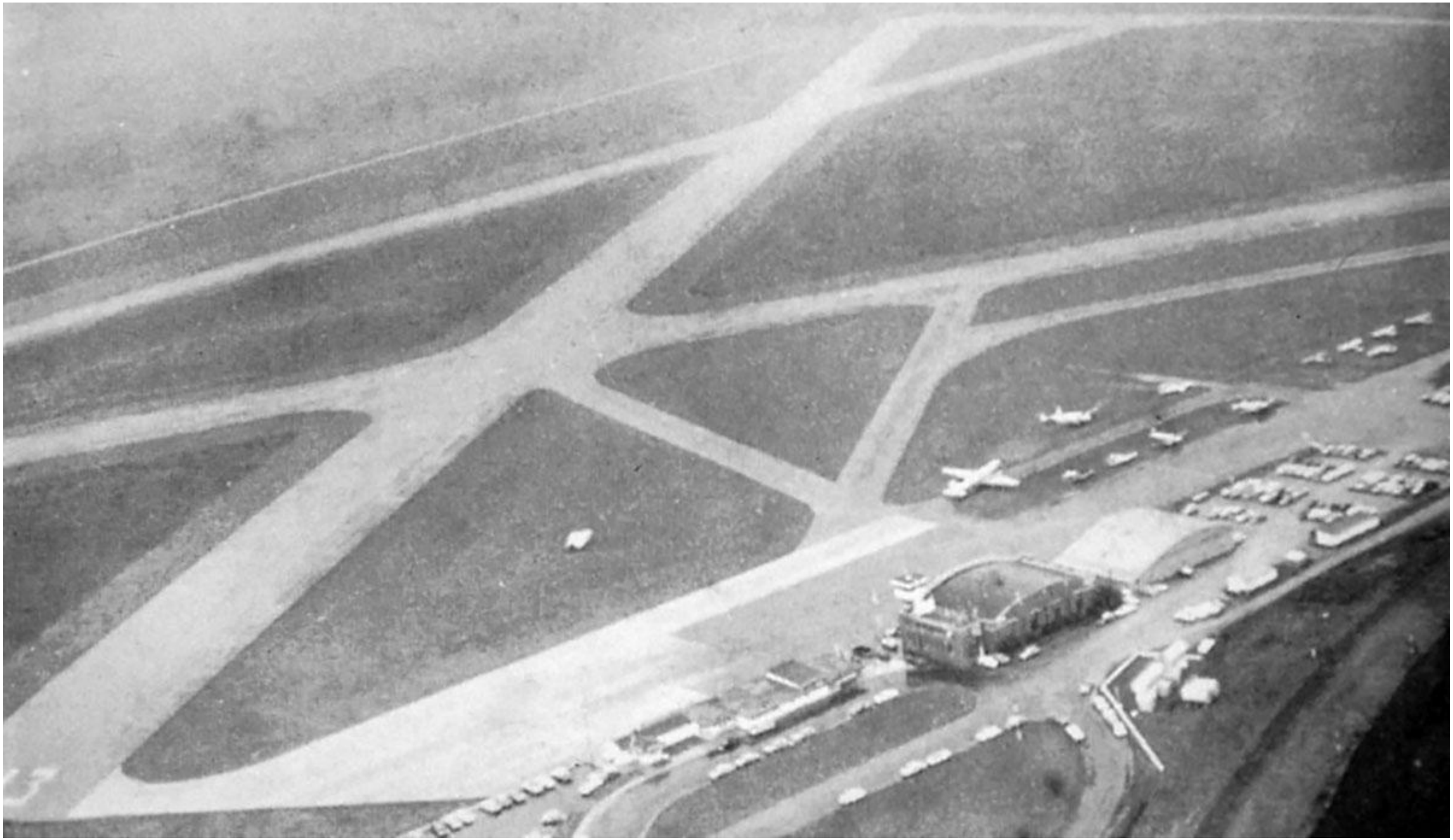

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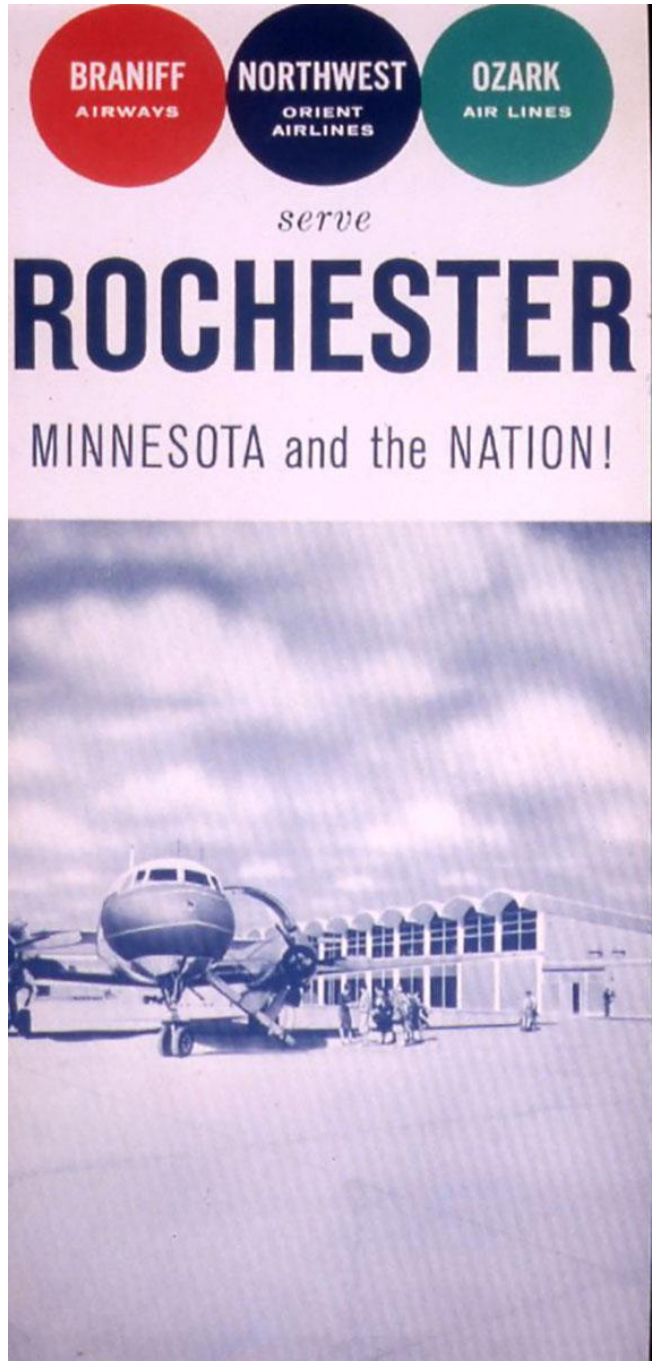


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