

Southeastern PA Cold War Historical Society

Celebrating
our 16th
year



*Preserving History Through the Memories
of Those Who Created It*

The Greater Philadelphia Region has a rich aerospace heritage!

To celebrate **America250**, we'll be sharing some of the region's aerospace heritage throughout 2026!
Look for our monthly posts and Happy Birthday America!



250 AMERICA PA
NONPROFIT AFFILIATE



250 AMERICA PA
BUCKS COUNTY

Did you know?

In the late 1950s, the U.S. Naval School of Aviation Medicine and the newly formed National Aeronautics and Space Administration (NASA) recruited deaf people for weightlessness, balance, and motion sickness experiments



From 1958 to 1968, 11 deaf men joined a research effort led by Dr. Ashton Graybiel from the U.S. Navy. Other deaf people, including one woman, briefly joined the study. In total, 14 deaf individuals volunteered for this research.

The core group was known as the “Gallaudet Eleven” because they came from Gallaudet University in Washington, DC—a university dedicated to the education of students who are deaf.

The group participated when called upon and remained involved in the research for many years.



Ashton Graybiel, MD (1902-1995)

Cardiologist and US Navy Captain whose research during World War II focused on the effects of fatigue and cardiovascular fitness on the performance of military pilots. Later, he became director of the U.S. Naval School of Aviation in Pensacola, FL, continuing to focus on the physiology of pilots.

Graybiel also led pioneering studies at the request of NASA starting in 1958 on the effects of weightlessness and acceleration on human balance, spatial orientation, physiology and performance. He also helped to develop medication regimens to help with alleviating motion sickness for astronauts.

Among numerous human subjects who volunteered for Graybiel's experiments, there were eleven deaf men called the "Labyrinthe-Defectives" ("LDs") for the lack of functioning labyrinthe organs in their inner ears due to meningitis or in one case, scarlet fever, earlier in life. All were from Gallaudet University in Washington, DC.

On zero gravity flights, in rotating devices, onboard a ship over turbulent seas, and in centrifuges the eleven deaf volunteers simply did not get motion sick.

Table 1

CLINICAL FINDINGS IN ELEVEN DEAF PERSONS WITH BILATERAL LABYRINTHINE DEFECTS

SUBJECT	AGE	AURICULAR DEFECTS		HEARING ¹		THRESHOLD RESPONSE CALORIC TEST		COUNTERROLL INDEX (MIN ARC) MAX TILT ⁴	
		ETIOL	AGE ONSET	R	L	R	L	50°	75°
DOMICH	48	MENINGITIS	13	NIL	NIL	N R ² 10°C 3 MIN	N R 10°C 3 MIN	74	74
GREENMUN	48	MASTOIDITIS	12	NIL	160	N R	N R	60	—
GULAK	26	MENINGITIS	4 1/2	>145	>145	10°C 40 SEC	10°C 40 SEC	76	89
HARPER	29	MENINGITIS	13	NIL	NIL	N R	N R	47	53
JORDAN	34	MENINGITIS	7 1/2	NIL	NIL	2.8°C 10 MIN	2.8°C 10 MIN	126	176
LARSON	29	MENINGITIS	6	>115	>110	10°C 40 SEC	?N R	73	109
MYERS	25	MENINGITIS	8	NIL	NIL	N R	7.5°C 40 SEC	63	82
PETERSON	33	MENINGITIS	12	NIL	NIL	2.8°C 10 MIN	40 SEC	21	30
PIPER	26	MENINGITIS	3	NIL	NIL	2.6°C 3 MIN	2.6°C 3 MIN	71	85
STEELE	25	MENINGITIS	12 1/2	>130	>135	9.0°C 40 SEC	NOT TESTED (INF)	110	117
WAKUTNEY	25	MENINGITIS	3 1/2	>135	>130	10.0°C 3 MIN	11.0°C 3 MIN	22	36

¹Response to white noise up to 160 db

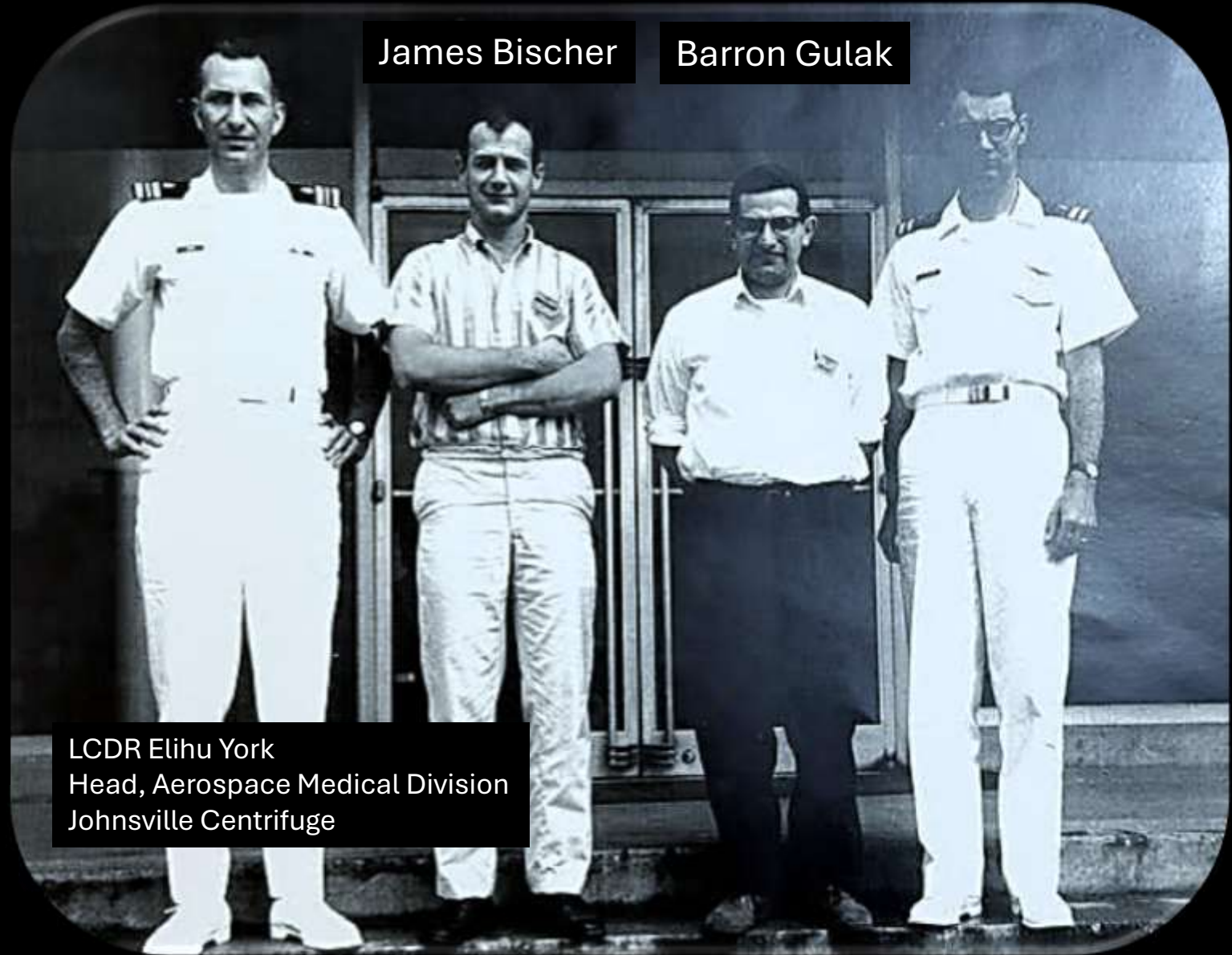
²R — No Response

³Half the sum of maximum roll right and left (min of arc)

⁴Angular displacement of body from vertical in frontal plane

Two of the “Gallaudet 11”, **James Bischer** and **Barron Gulak**, rode the Johnsville Centrifuge in Warminster, PA as part of Graybiel’s ongoing motion sickness experiments during **June 7 – 11, 1965**.

This photo was taken at entrance to the centrifuge building.

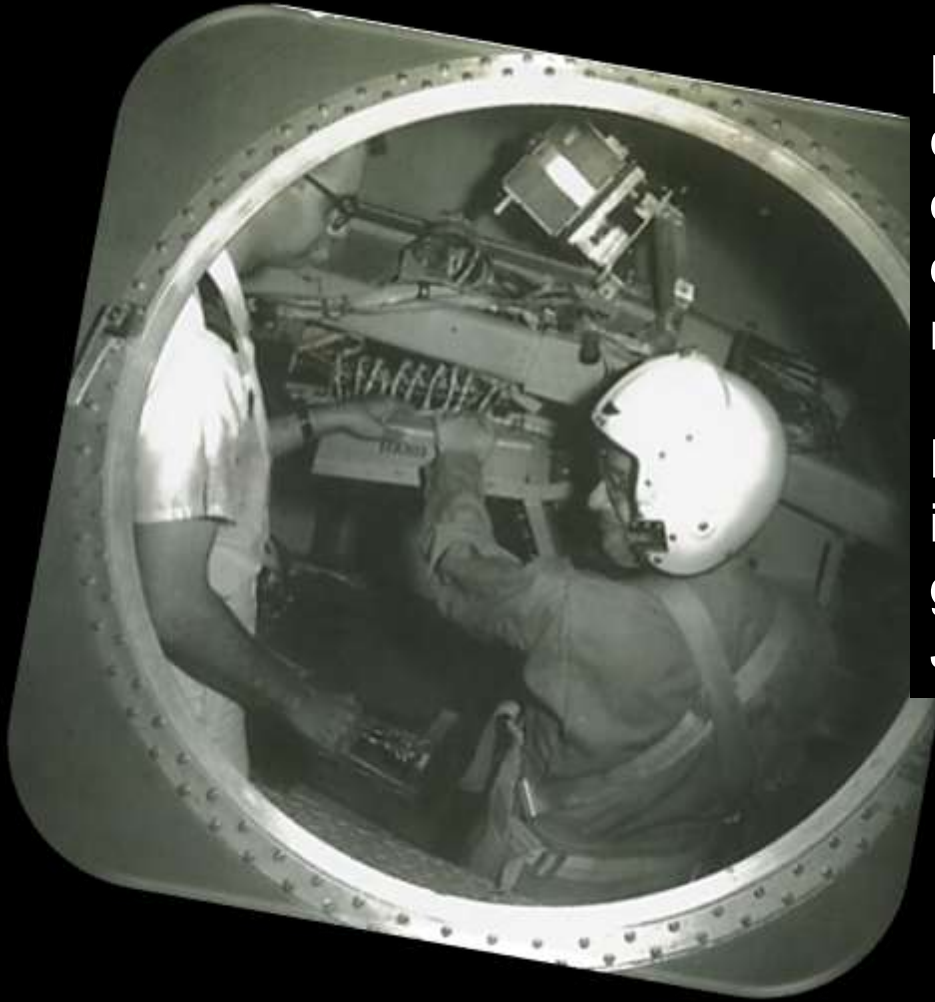


James Bischer

Barron Gulak

LCDR Elihu York
Head, Aerospace Medical Division
Johnsville Centrifuge

Barron Gulak



Note his right arm is cannulated for blood draws he drew himself during his centrifuge rides.

Barron is standing just inside the spheroid gondola of the Johnsville Centrifuge.

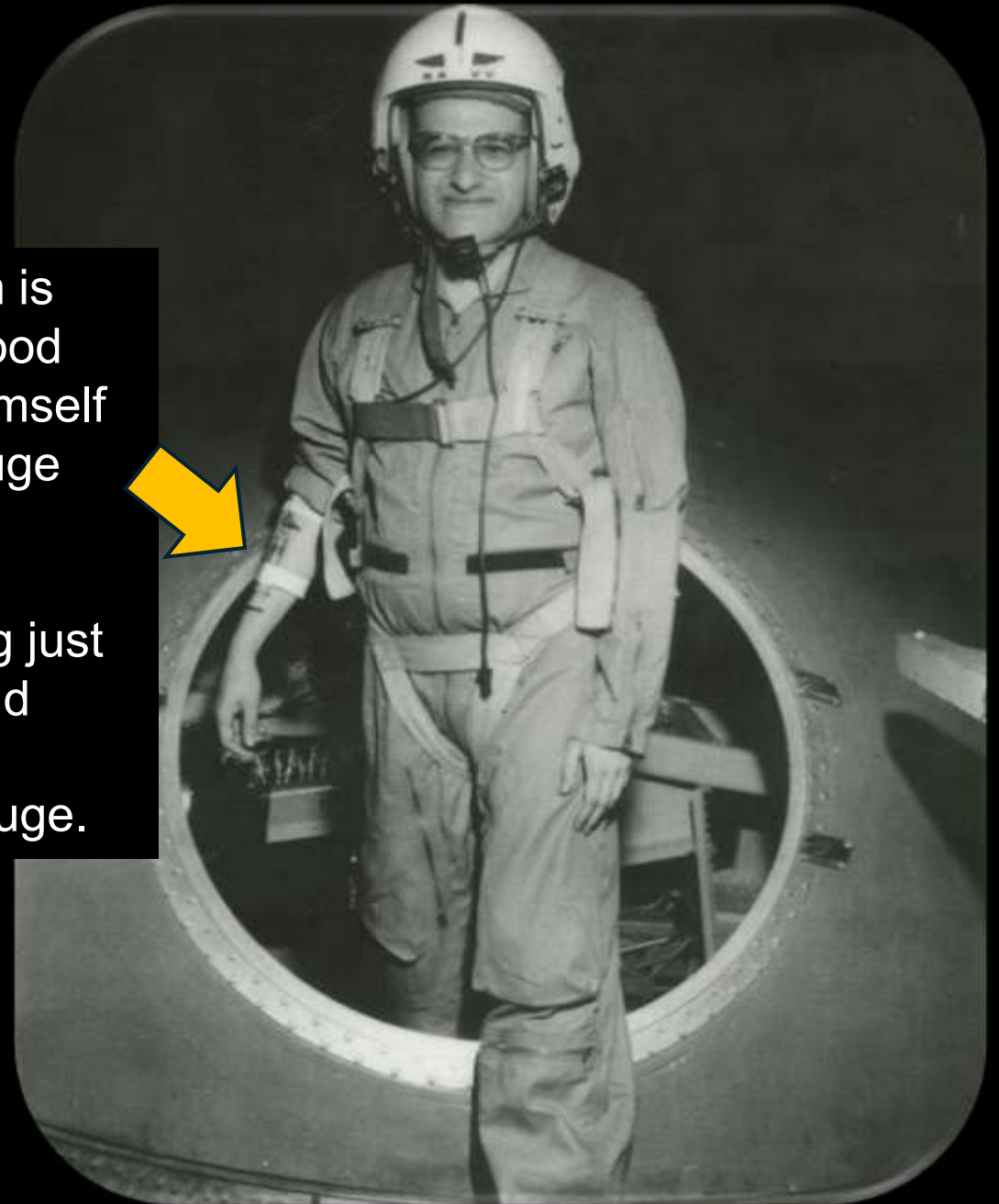


Photo scans of logbook entries from the days
Bischer and Gulak rode the Johnsville Centrifuge

June 7, 1965

0830 Power house on
 0900 unmannead dynamic
 0950 Barron Gulak angular run
 1040 James Bischer angular run
 1125 #100101 unmannead ca
 1130 hit S limit spread apart. re
 1135 hit S limit found tag re
 1146 hit arm error limit Post breakers set error limit
 1150 out re run triped Emergency stop
 to 10,000 angles
 1320 repeat 100101 650 sec
 1340 100202 327 sec
 1400 100403 625 sec
 1425 100104
 1450 Power house secured

June 9, 1965 Z.D.

Power house on 0805
 0825 unmannead dynamic
 0925 Gulak Linear 6 peaks hold for 8 sec.
 1000 Bischer Linear 6 peaks hold for 8 sec
 1015 Power house secured

June 10, 1965 Z.D.

Power house on 0815
 0840 unmannead dynamic Combined run
 0925 Gulak Combined run 6 peaks 8 sec each
 0945 Bischer Combined run 6 peaks 8 sec each
 1120 ^{MARTORANO} ~~Martorano~~ 4 5" G" of suit.
 1240 Power house off



U. S. NAVAL AIR DEVELOPMENT CENTER
JOHNSVILLE, PA. 18974

25 June 1965

Mr. Barron Gulak
5041 Bradley Blvd.
Bethesda, Maryland

Dear Mr. Gulak:

Thank you very much for coming to the Aviation Medical Acceleration Laboratory, NADC, Johnsville, during the week of 7 through 11 June 1965, in order to participate in the research project to explore autonomic-labyrinthine relationships. The laboratory specimens of plasma and urine nor-epinephrine are being analyzed at the University of California Medical Center.

Enclosed please find your Centrifuge Subject Certificate. With best wishes to you personally for your continued success, I remain:

Yours truly,

LCDR Elihu York, MC, USN
Head, Aerospace Medicine Division
Aviation Medical Acceleration Laboratory

Barron Gulak's letter of appreciation and certificate of participation from centrifuge experiments

Source: Gallaudet University

*Many thanks for your help and cooperation
in the V-D project at RMAC June 1965*

*R. P. Brown
E York*

Aviation Medical Acceleration Laboratory

U. S. NAVAL AIR DEVELOPMENT CENTER
JOHNSVILLE, PENNSYLVANIA



awards this certificate to

BARRON GULAK

FOR VOLUNTARILY CONTRIBUTING TO THE ADVANCEMENT OF
AVIATION MEDICAL RESEARCH
as a subject in the world's largest
HUMAN CENTRIFUGE
on the 7th day of June 1965

E. M. Wenzel
DIRECTOR, AMAL

R. P. Brown
COMMANDING OFFICER, NADC

LCDR Elihu York

Head, Aerospace Medical Division
Johnsville Centrifuge!



Even those overseeing centrifuge experiments often served as human test subjects!