

# **Women of the NACA STEM Stories to Inspire Future Generations**

Adrienne Provenzano, STEAM Educator

The NACA Centenary  
A Symposium on 100 Years of  
Aerospace Research and Development

March 3 – 4, 2015  
National Air and Space Museum  
Washington, D.C.

**COME JOSEPHINE  
IN MY FLYING MACHINE**  
(UP SHE GOES !)

Lyrics by ALFRED BRONN  
Music by FRED FISCHER

Copyright 1910 by Alfred Bronn  
Published by Fred Fischer

THE CHEAPEST PRICE ON THE MARKET  
**THE FLYING LADY**

Music by  
WALTER COBBE STEWART  
Lyrics by  
ALEX. WOODS

Copyright 1910 by Walter Cobbe Stewart  
Published by Alex. Woods

**MY AEROPLANE GIRL**

SONG  
Written and Music by  
**W. ARIEL SCOTT**  
April 1911

Published by  
W. Ariel Scott  
The Music Co., Philadelphia, Pa.

# Suffragists in Washington, D.C. March 3, 1913



# The first NACA meeting - 1915

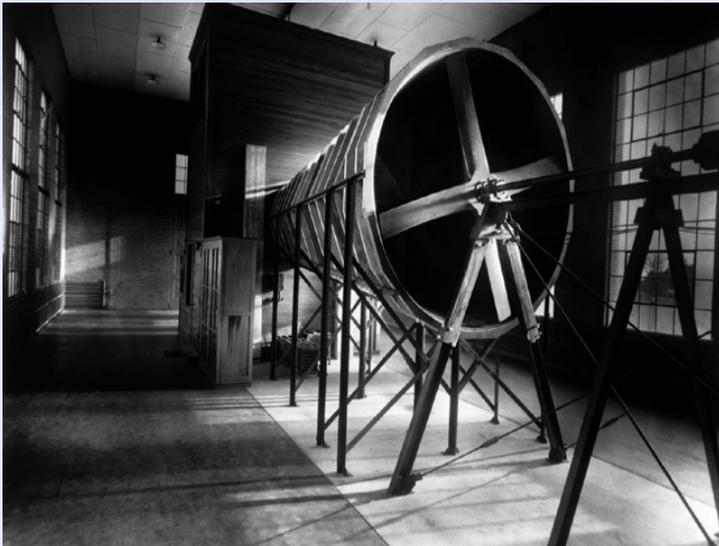
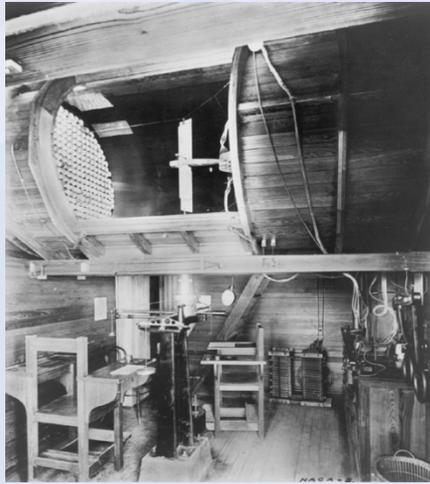


# What is STEM?

- Science
- Technology
- Engineering
- Mathematics

STEM + A (for arts and humanities) = STEAM

# Langley Memorial Aeronautical Laboratory



In the end all women and all men can only benefit from the more truthful and balanced image of women which will emerge from history where they are shown to have been actively involved in shaping their own destiny and that of the country.

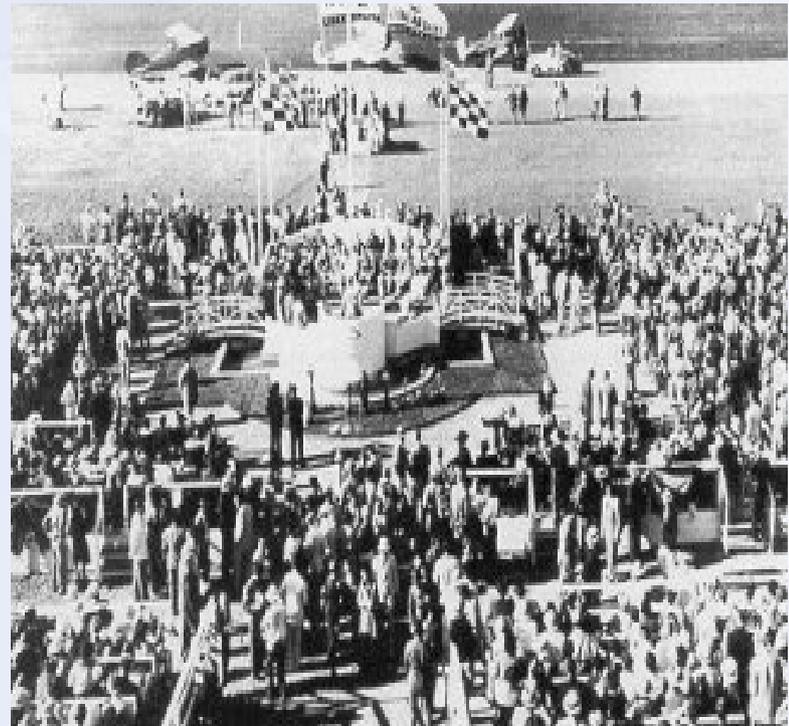
Eleanor Flexner  
Historian and Scholar

# Pearl Young (1895 - 1968)



Pearl Young Theater Dedication - 1995

# 1929 National Women's Air Derby



# Amelia Earhart visits Langley



# Ruth Elder



# Phoebe Fairgrave Omlie



# Human Computers

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## LIFE BEGINS AT ANN WYTHE HALL AS GIRLS MOVE IN



**SIGNING UP....**



**BULL SESSION....**



**AND SO TO BED....**



**JUST "CONVALESCING"**



# Langley Computers



JEAN BIDDLE MORGENTHAU  
LORIS BARRON  
NANCY COLTER  
KATY YOUNG  
LAWREN JOHNSON  
DAN CORRISS  
LINDA NICK  
ULMAR STABLER  
JEAN SCOTT  
MARY MAINE G.  
WILLIE RUFFIN

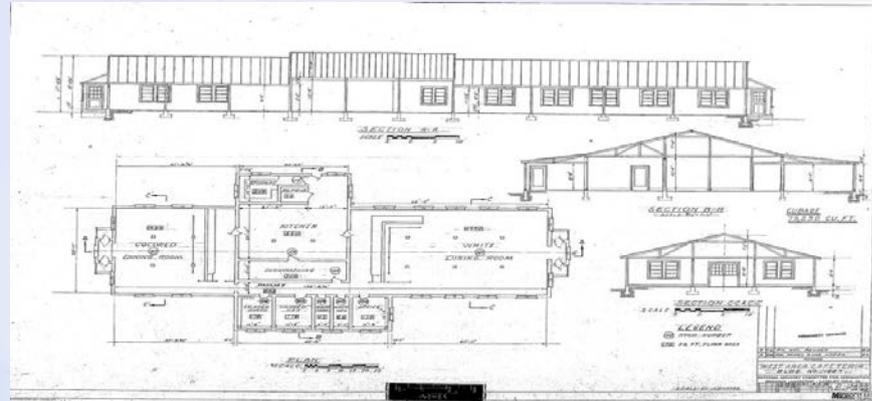
# All In A Day's Work



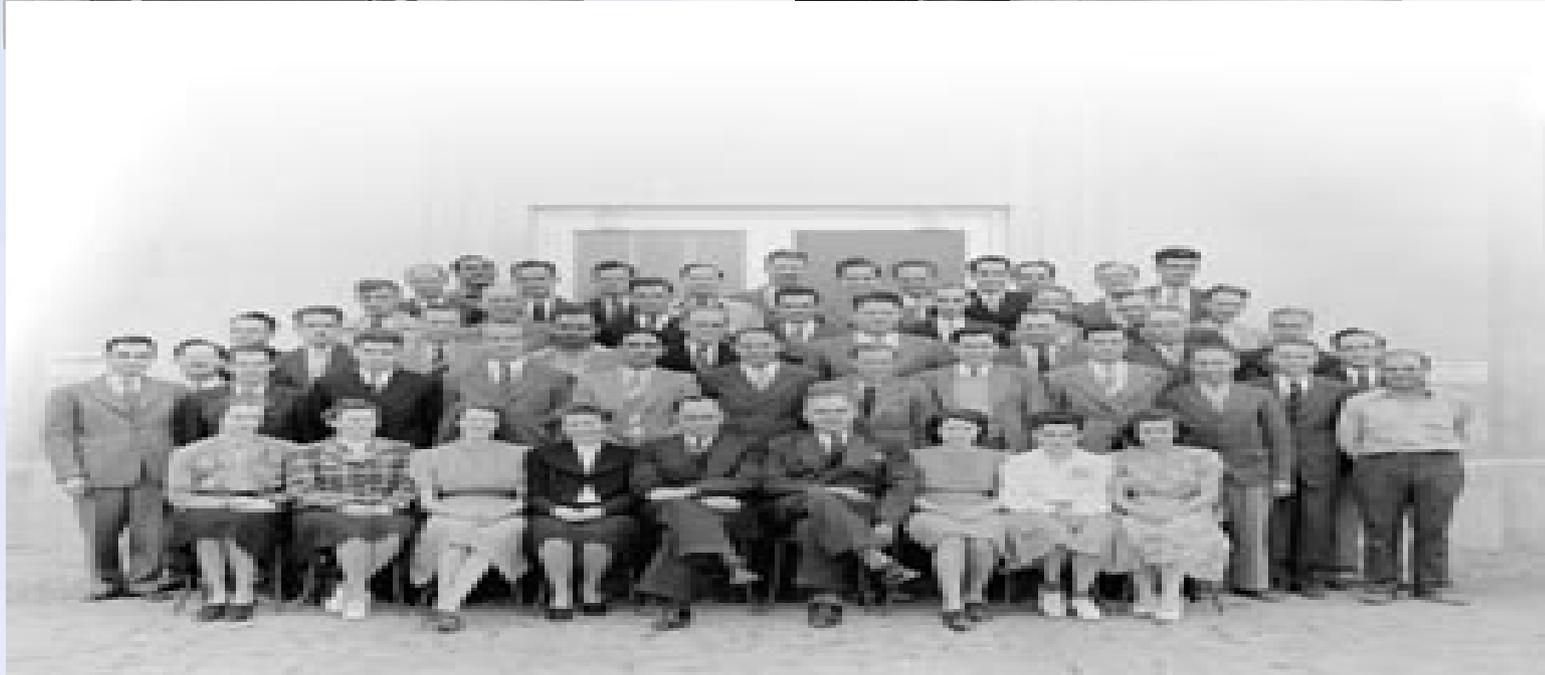
# Kitty O'Brien Joyner - Engineer



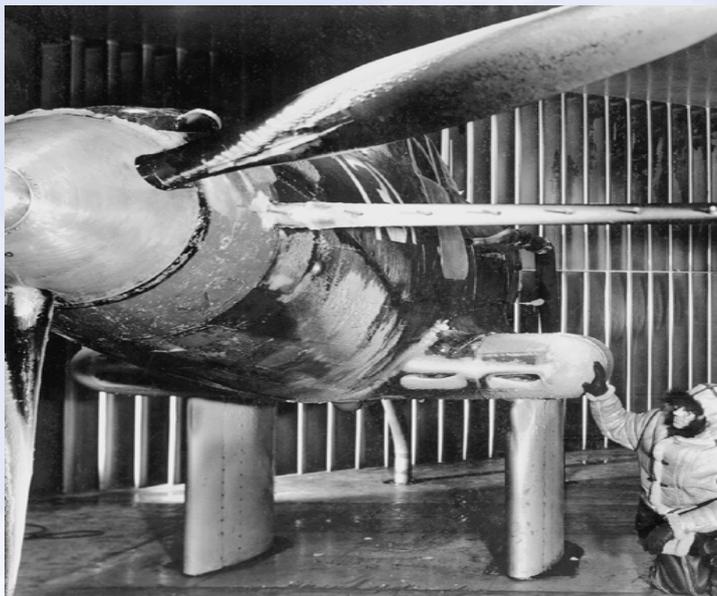
# The War Effort and Diversity



# Ames Aeronautical Laboratory



# Aircraft Engine Research Laboratory



# Muroc Flight Test Unit



NASA Dryden Flight Research Center Photo Collection  
<http://www.dfrc.nasa.gov/Gallery/Photo/index.html>  
NASA Photo: EC95-43116-6 Date: 1947 Photo By: NASA  
Complete NACA Muroc Staff of 1947, in front of the XS-1 and B-29



Dryden Flight Research Center E49-0212 Photographed 11/15/49  
Dryden personnel with snowman. NASA photo



Dryden Flight Research Center E49-0053 Photographed 10/49  
Early "computers" at work. NASA photo



# Dr. Hugh L. Dryden and Jo Dibella



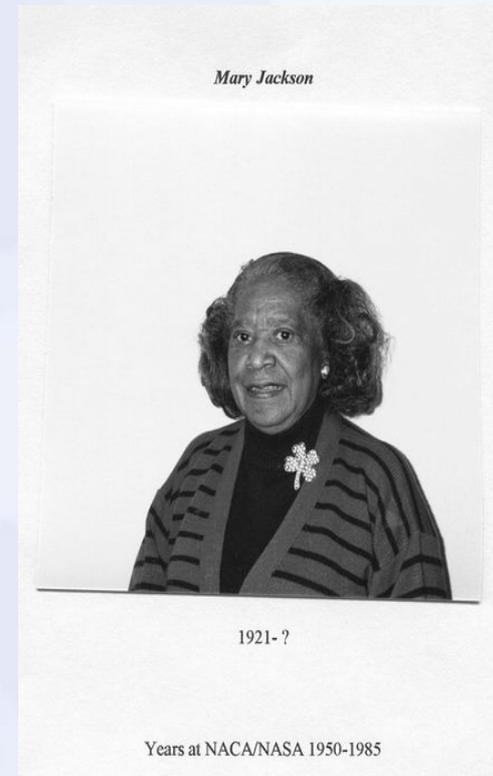
By connecting with the lives of your figurative sisters, mothers, grandmothers and great grandmothers in all the diversity of the backgrounds they represent, you gain strength from the challenges and successes of the women who came before you. If she could do that – if she could overcome that – if she could create that – so can I!

Polly Welts Kaufman,  
Writer, Teacher, Activist

# From the NACA to NASA

## Mathematician to Aeronautical Engineer

### Mary Jackson



# Katherine G. Johnson

## Research Mathematician and Physicist



# Searching for “Hidden Figures”



- Photo credit: NASA/David C. Bowman



# Dr. Karen Nyberg, Astronaut and Engineer To Boldly Go...



# Acknowledgments

AAUW

Beverly Golemba

Dr. Duchess Harris

Gene Nora Jessen

The Geena Davis Institute on Gender in Media

The Girl Scouts Research Institute

Helen DeWitt Whittaker

Indiana University

Janann Sherman

Margot Lee Shetterly

NASA and the NACA

The National Women's History Project

The National Girls Collaborative Project

Online Archive of California

Sheryll Goecke Powers

University of North Dakota

The National Women's History Project

And many other helpful resources!

# Credits

The Human Computers Project  
IN Harmony – Indiana University

Iowa State University

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NASA CRGIS

NASA Oral History Project – JSC

NASA.gov

University of North Dakota

What Matters - WHROTV