

April 16, 2024



# TURAC 2024<sup>+</sup>

Connection • Collaboration • Cohesion

## Welcome & Opening Remarks

## Plenary Speaker: Dr. Paul S. Keim



## **Land Acknowledgement Statement**

*“Arizona State University, Northern Arizona University, and the University of Arizona collectively acknowledge their campuses are situated on the ancestral lands of 22 federally-recognized tribes located across Arizona. These universities collectively honor the past, present, and future generations of Native Americans, who have lived here for millennia and will forever call this place home.*

*Committed to diversity, the institutions integrate Indigenous knowledge into their practices and strive to cultivate sustainable relationships with Native Nations through education, partnerships, and community service.”*

# Welcome & TURAC by the #'s...



- On behalf of the National Science Foundation, Arizona Board of Regents, NAU President Dr. Jose Cruz-Rivera, NAU Vice President for Research Dr. Jason Wilder, and our entire Planning Committee, **WELCOME TO FLAGSTAFF and our 3<sup>rd</sup> annual installment of TURAC!!**
- Some of the #'s:
  - **379** registered attendees: **122** in-person and **257** on-line/virtual
  - **>67** attendees have traveled to FLAG; plus **11** people joining remotely from Idaho, Michigan, and Banner Health. **12** Arizona community colleges are also in our Convening catchment
  - Over the next **2** days, we'll hear from more than **50** speakers, through **23** distinct Sessions, across **3** distinct tracks, plus networking fun!
  - **6** planning subcommittees, staffed by more than **40** volunteers, from **4** AZ institutions have teamed to develop a program geared toward your enrichment:  
Their work is guided by **3** themes: **Connection** - **Collaboration** - **Cohesion**

**Our simple ask: Please find ways to make this Convening about YOU!**

# Bio Highlights: Dr. Paul S. Keim...



- ...is a long-time university member including his years as an **NAU undergraduate in the 1970's** when he graduated with a **BS in Biology and Chemistry** double major, *magna cum laude*;
- ...did **graduate school/postdoctoral fellowships** at **U of Kansas, U of Utah, and Iowa State**; returning to NAU in 1989 as an assistant professor biology. In 35 years since, **rose to Regents Professor** and holds the **Cowden Endowed Chair in Microbiology**;
- ...is **one of NAU's most productive researchers** securing **>100 grants totaling >\$100M** in award \$'s. Has published more than **500 scientific papers** that have been **cited over 50,000 times** - all done with the active help of undergraduates;
- ...is an elected fellow of the **American Academy of Microbiology** and the **American Association for the Advancement of Science**;
- ...has **served (and chaired) major US research policy boards** including the National Science Advisory Board for Biosecurity (NSABB), which develops research policy for US and Global research on dangerous pathogens;
- ...is an **affiliated research scientist** in the Life Sciences Division at **Los Alamos National Laboratory** and the Department of Biology at **Oxford University**;
- ...focuses his **current research** efforts on advancement of **forensics and genomics analysis of bacterial pathogens**.



# A small token of our gratitude...



## Certificate of Appreciation

This certificate is presented to

Dr. Paul S. Keim - Northern Arizona University

*For your outstanding contribution as Plenary Speaker, supporting the 3rd Tri-University Research Administration Convening (TURAC 2024+), held April 16 - 17th 2024, at Flagstaff, Arizona.*

*This gathering between Arizona State University, Northern Arizona University, and The University of Arizona is only successful with the extraordinary efforts of Convening program participants, like you, who share their experiences and impart their counsel, for the benefit of all attendees.*

*We appreciate the time, expertise, preparation, and delivery you provided the Convening and wish you continued success in all your future research and research administration endeavors.*

Thomas Champagne, Jr.  
Convening Co-Chair,  
2024 Tri-University Convening

Valerie Keim  
Convening Co-Chair,  
Co-PI NSF-GRANTED Award  
2024 Tri-University Convening

Samantha Munguia, CRA  
Co-PI NSF GRANTED Award  
2024 Tri-University Convening





# NAU comes-of-age as a Research Institution



Dr. Paul S. Keim

Regents Professor and Cowden Endowed Chair  
Executive Director: Pathogen and Microbiome Institute



**1899**

## Northern Arizona Normal School



**1901**

Four women graduated with  
lifetime teaching certificates

**1925**

**Northern Arizona State Teachers College**  
A four-year institution with the power to grant  
the bachelor of education degree.

**1929**

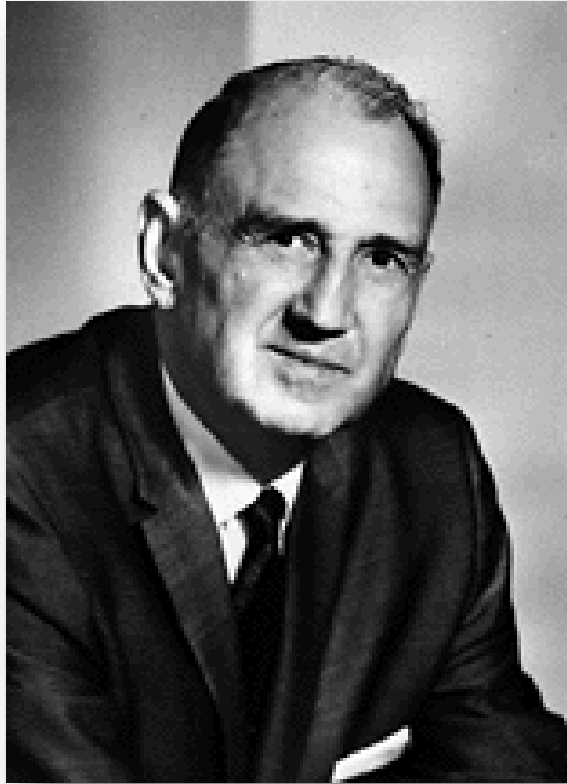
**Arizona State Teachers College**  
*renamed*

**1945**

**Arizona State College**  
offers Arts and Sciences Degrees



# J. Lawrence Walkup



**President**

1957 - 1979

**1958** - Forestry program

**1966** - Northern Arizona University

**1968** - Doctoral Degrees Established

**1973** - First Doctoral Graduates





**Diana Gabaldon, PhD**

She graduated from NAU in 1973 with bachelor's degree in biology and in 1978 earned her **NAU doctorate** in zoology

## 2023 NAU Enrollment

28,194 students

64% women

Hispanic serving Institution ~ 25%



# NAU Athletics -- Cross Country

NCAA National Champions six of the last eight years



# NSF Research Rankings!!!



## Institution Profiles

Academic Institution Profiles Home

List of institutions

**A top 200 University  
~80<sup>th</sup> percentile  
of Research Expenditures**

## Northern Arizona U.

### Rankings

Year	Total R&D expenditures			Full-time graduate students			Research space		
	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile
2017	279	187	79	425	196	71.4	684	237	58.8
2016	233	178	80.4	430	207	70.3	697	213	76.2
2015	287	184	79.9	426	204	70.6	693	246	56.9
2014	262	184	73.7	422	204	70.4	688	222	75
2013	264	191	79.1	417	206	63	555	244	58.6
2012		175	74.9	447	175	74.9	555	208	64.8

### NOTES:

1. This table only show data for past 10 years from each survey.
2. See [TableBuilder](#) for the prior year data.
3. Blank white cells indicate data not available, not applicable, or institution not eligible for survey.
4. Data from the Survey of Science and Engineering Research Facilities is collected every two years.

Total R&D expenditures

Research Space

Release notes

Technical notes

Errata

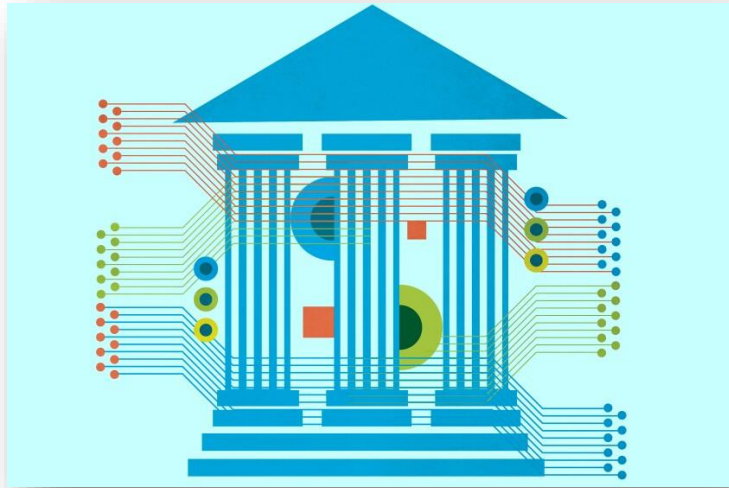
TableBuilder

NCSES Home



# THE CHRONICLE OF HIGHER EDUCATION

NEWS | ADVICE | THE REVIEW | TOPICS ▾ | CURRENT ISSUE | VIRTUAL EVENTS | STORE ▾ | JOBS ▾ | 🔍



NOVEMBER 1, 2023

## Who Will (and Will Not) Be an R1

*The Chronicle* compiled this **projected list** of R1 institutions based on the new Carnegie classification guidelines. Search or use the filters below to see who would meet the new criteria if the list were assembled using the latest available data.

Projected R1 **New to R1** No Longer R1

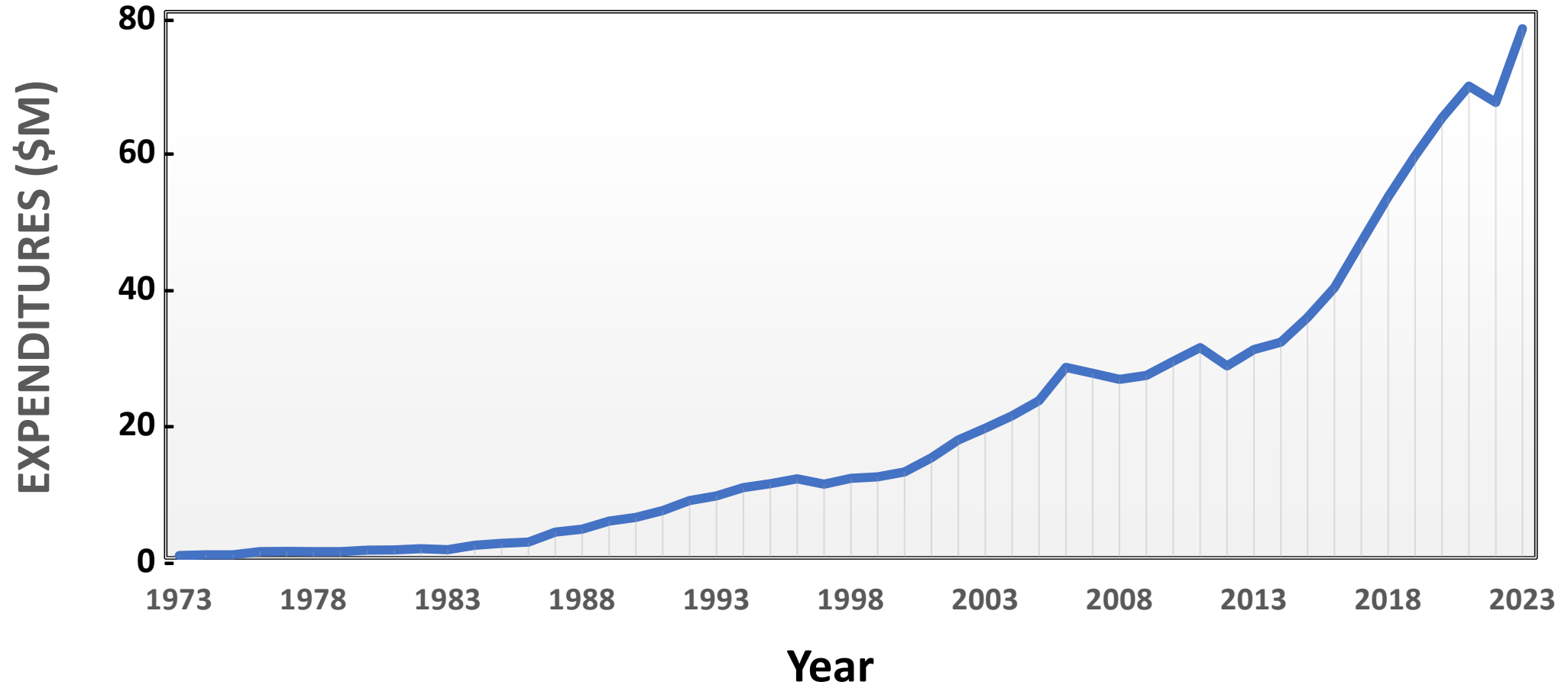
🔍 northern ✕

Institution Name	Fall 2021 Enrollment	Doctoral degrees	R&D Expenditures
Northern Arizona U Public   R2 Doctoral <b>NEW</b>	28,711	83	\$69.13 M

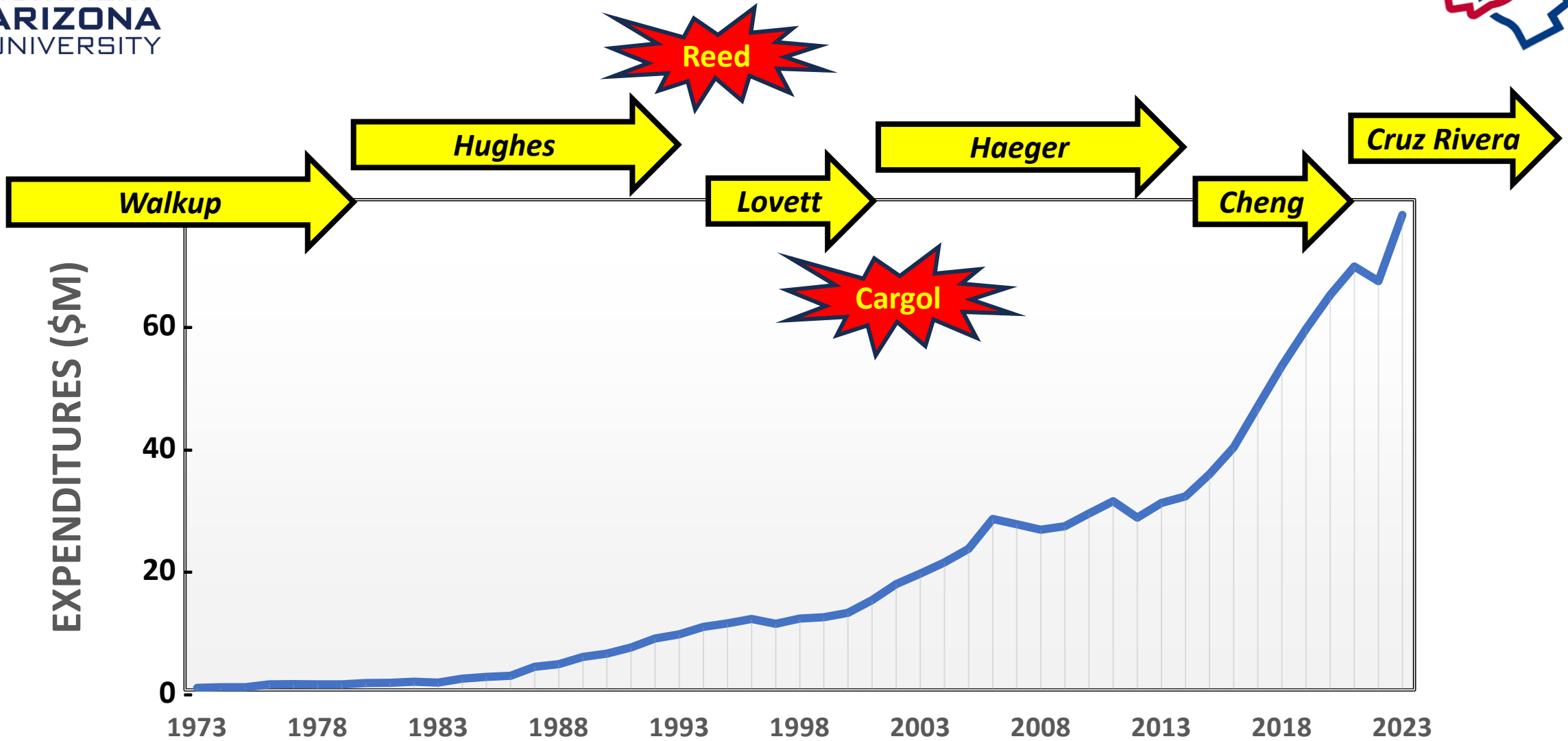
*Carnegie Research 1 University status in 2025*



# NSF-HERD Expenditures

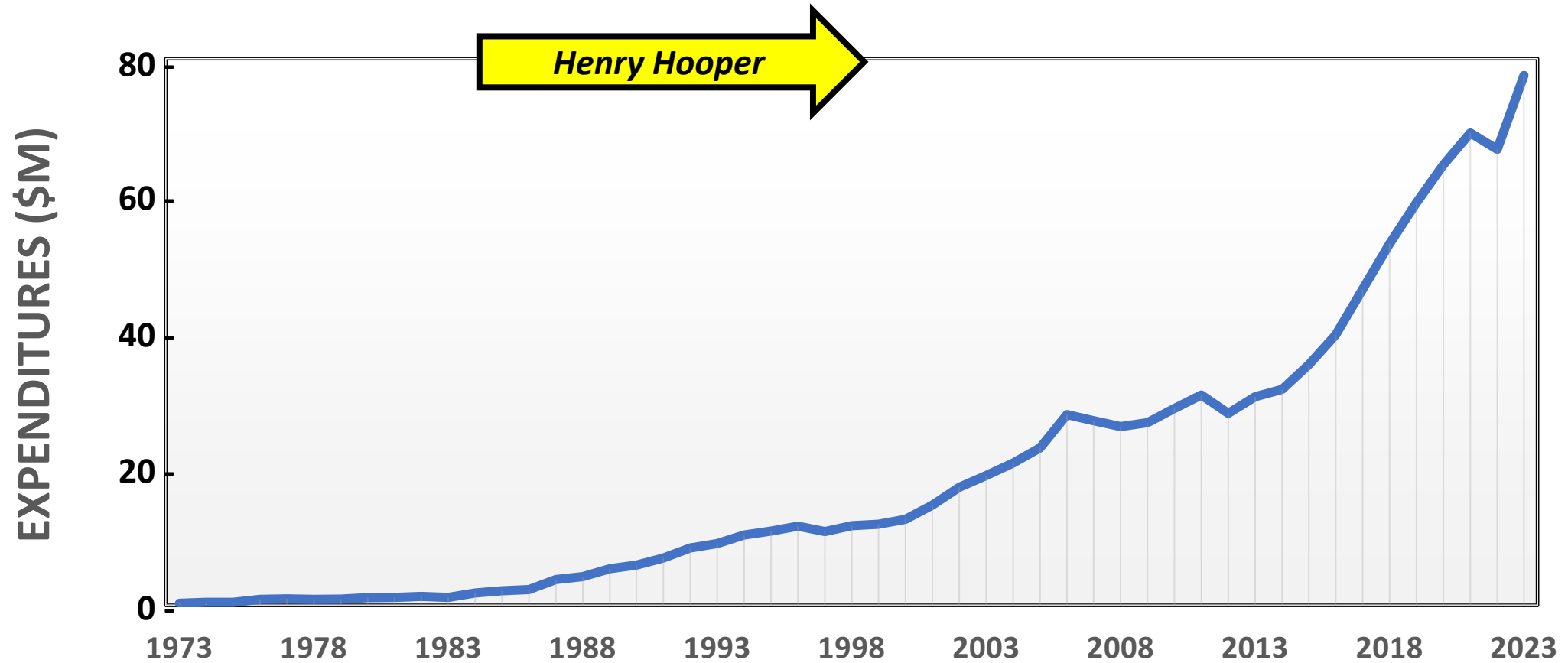


# NAU Presidents





# Vice President of Research



# Dr. Henry O. Hooper

Associate Academic Vice President for Research,  
Graduate Studies, and Dean of the Graduate College



**1981-1998**







# Dr. Henry O. Hooper

Academic Vice President, 1981-1998



- *Organized Research Funds were made competitive in a way to reward research productivity, which lead to a bottoms up expansion of research.*
- *NAU research growth was broad-based across campus with increasing in research activities by many faculty.*
- *New faculty hired as good teachers but with the expectations of a strong research program.*



# Dr. Henry O. Hooper

NCURA President, 1993

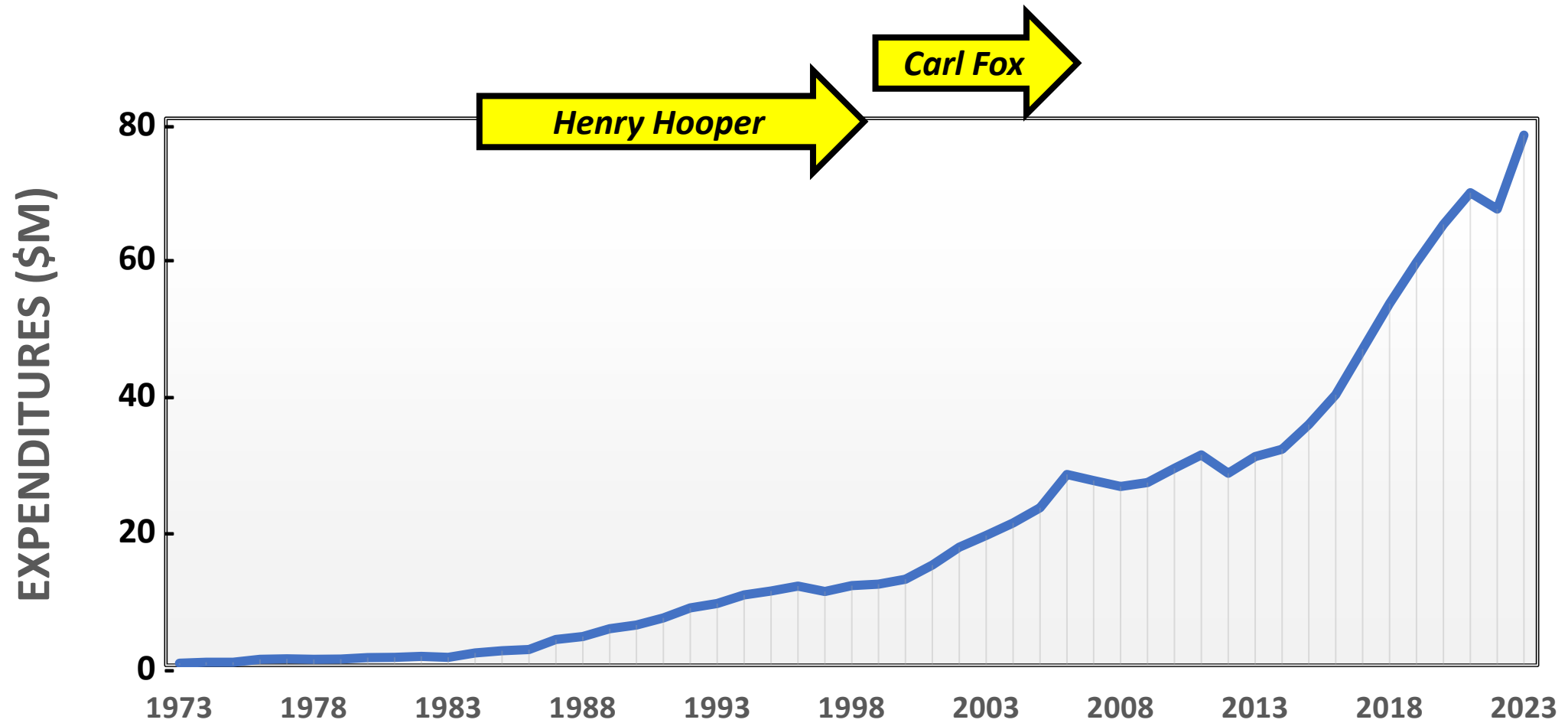


# NCURA

Supporting Research...*together*<sup>™</sup>

National Council of University Research Administrators

# Vice President of Research





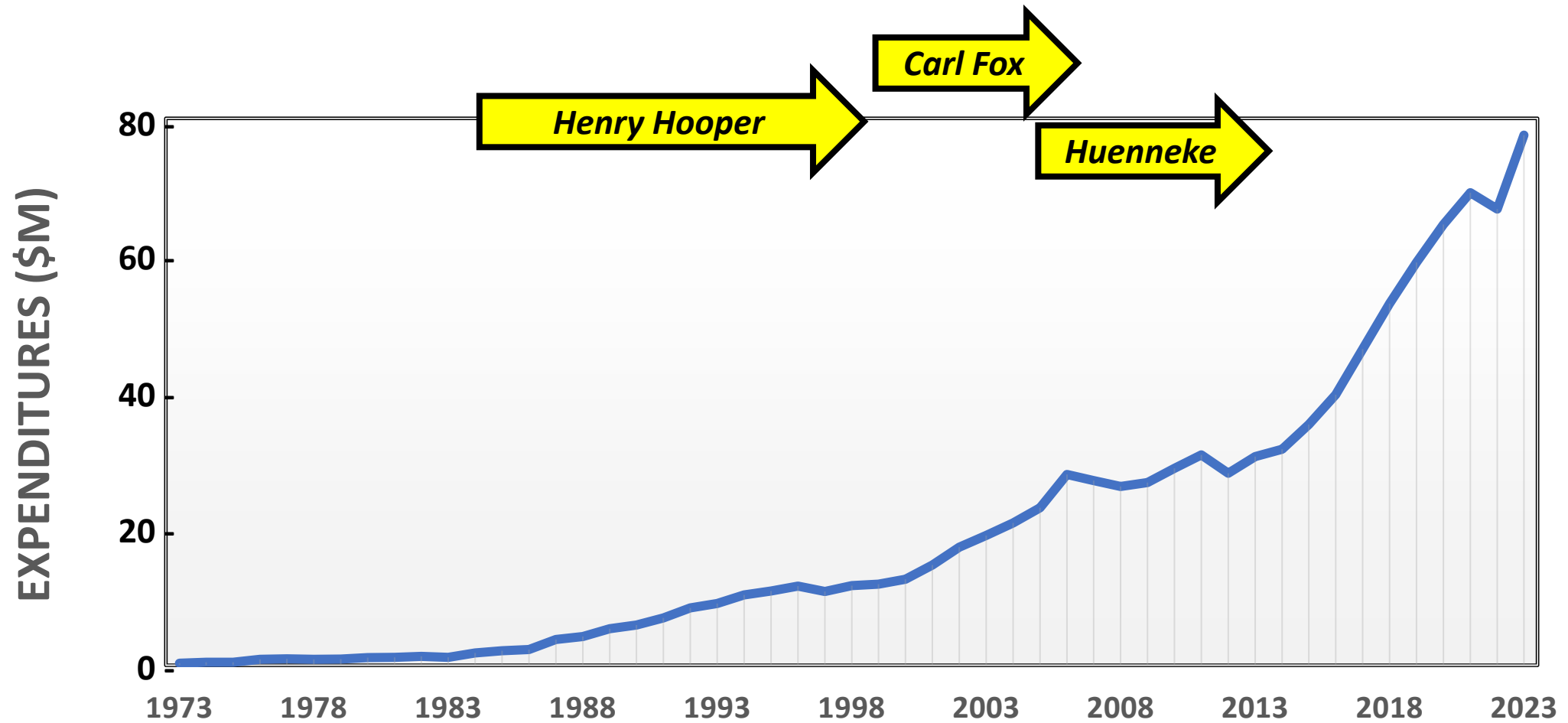
# Dr. Carl Fox

VP for Research, 2001-6



- *Arizona TRIF funds obtained to support research infra-structure, activities, and faculty hires.*
- *Multiple specialized Research Centers were initiated, with their own infrastructure development.*
- *Research revenues and expenditures increased 24% and 53%, respectively.*
- *ROI on internal research grants to external awards was 5:1.*
- *Research prospered even with the 911 associated 15% budget cut.*

# Vice President of Research





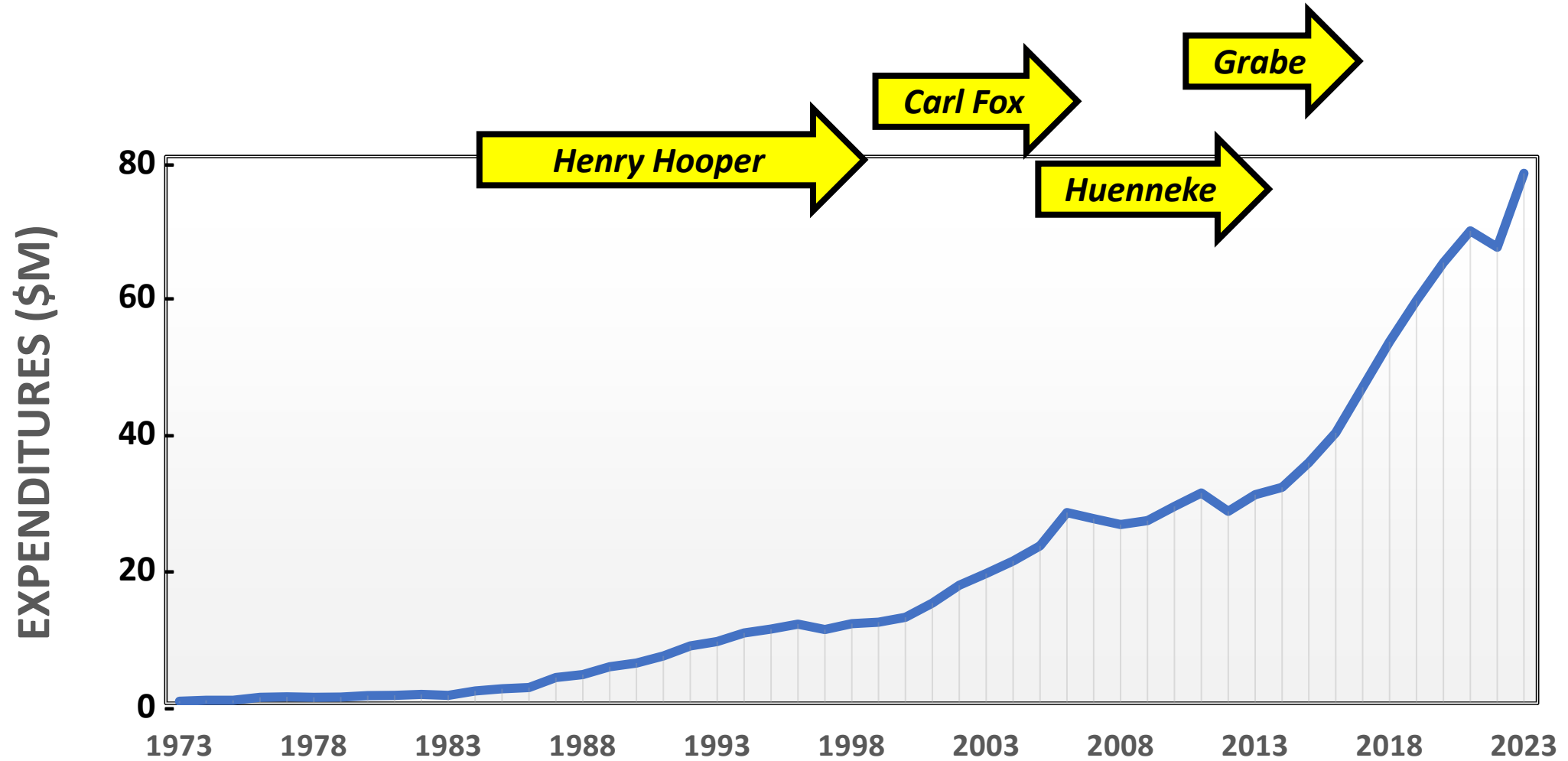
# Dr. Laura Huenneke

VP Research – 2007 to 2012



- *Tech-transfer came in-house, IP management, and established NAU Ventures.*
- *Faculty awards were established to recognize outstanding research and scholarship.*
- *We initiated guidelines for new PhD programs, new centers and institutes, and service center operations*
- *NAU negotiated its first official full indirect cost rate.*

# Vice President of Research



# Dr. Bill Grabe

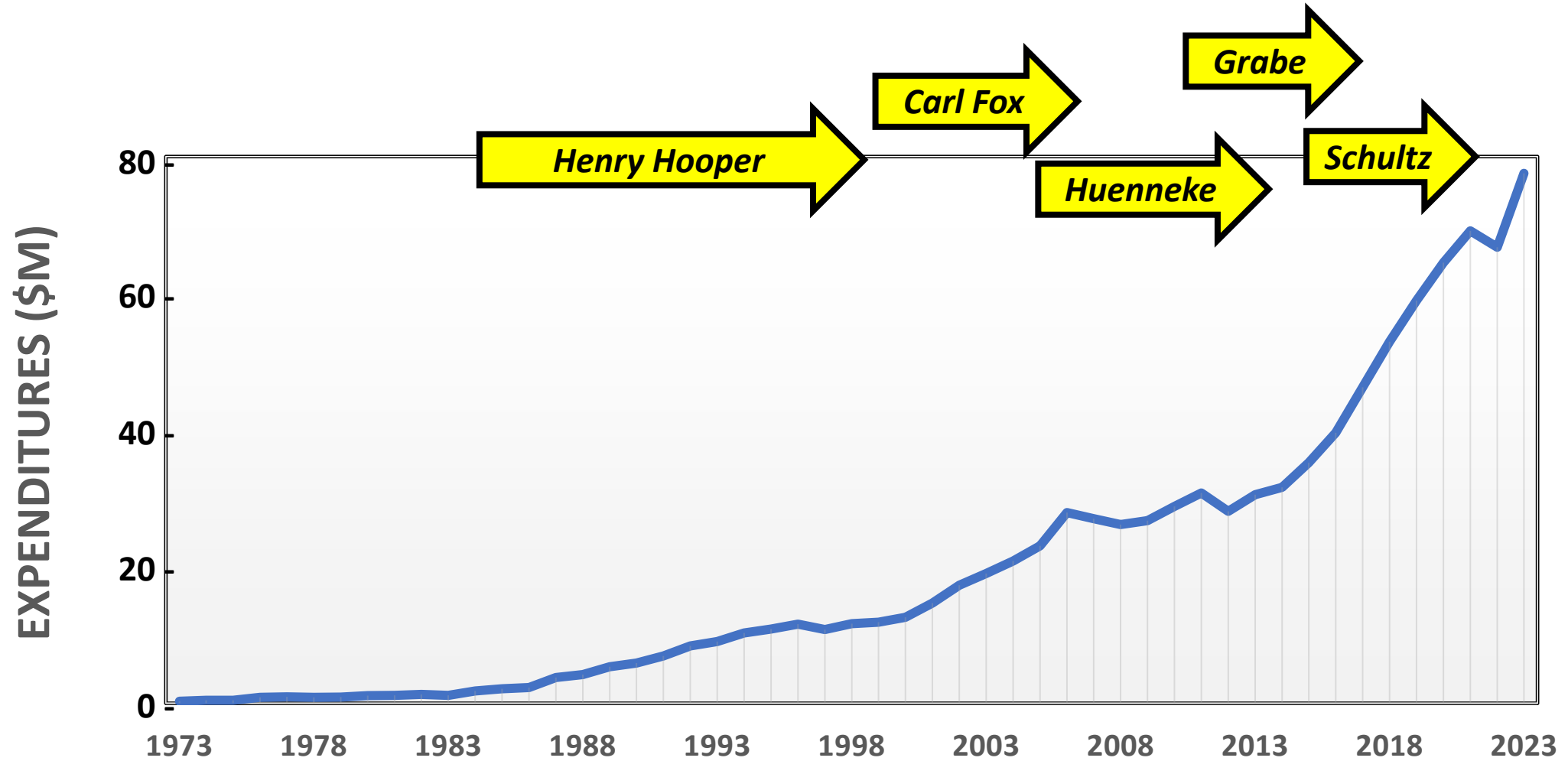
VP for Research, 2006-7, 2012-17



- *Our research efforts expanded in Engineering with a School of Informatics, Computer Science, and Cybersecurity.*
- *Two highly productive research centers initiated: ECOSS and CHER*
- *We set a goal to reach the top 200-tier of research universities, which was accomplished by recruiting high research faculty.*



# Vice President of Research





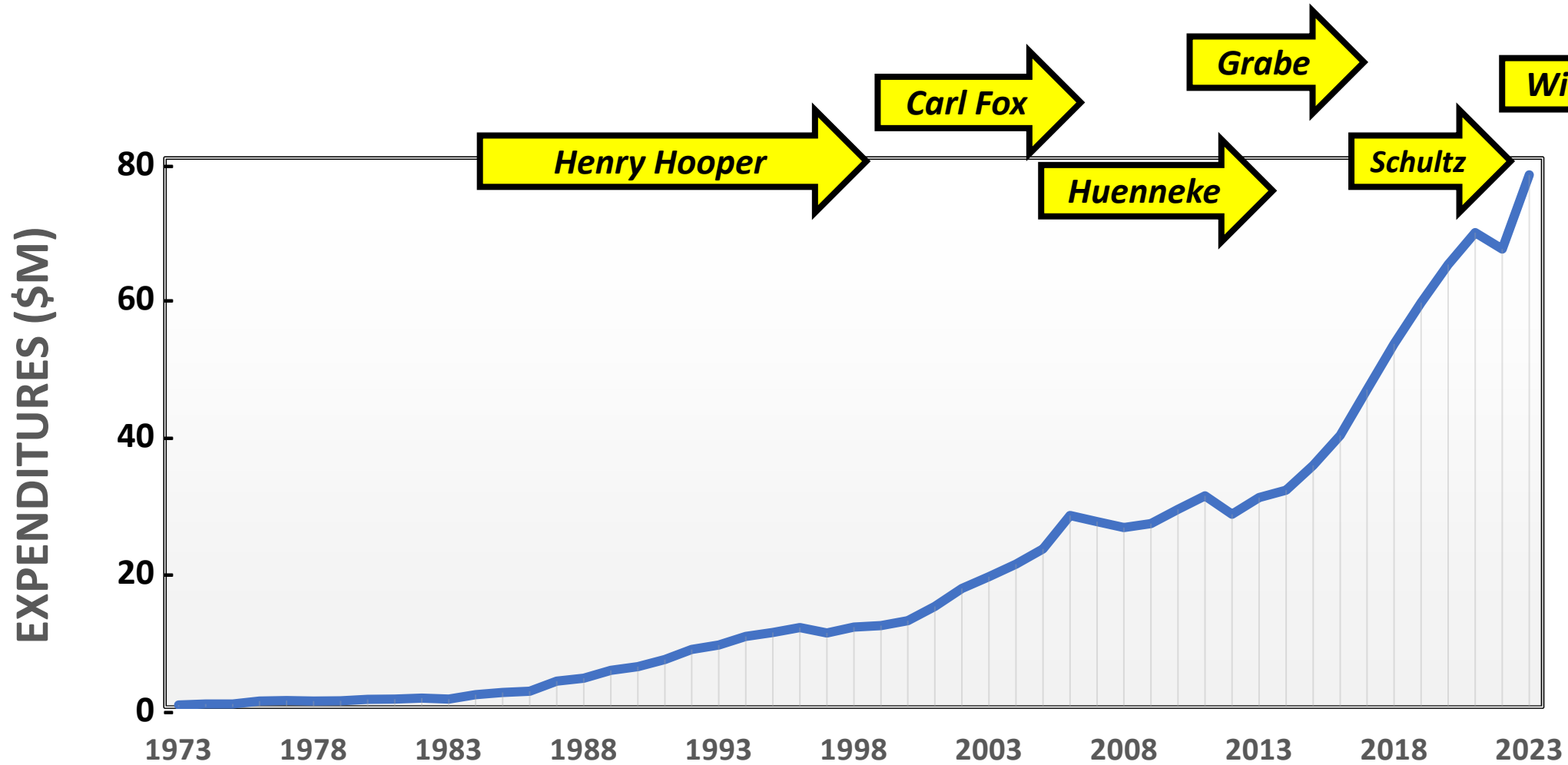
# Dr. David Schultz

VP for Research, 2017-2021



- *Major investments in high-research faculty and infrastructure.*
- *Formal policies were developed for research faculty.*
- *F&A was directed research applications instead of general university funds.*

# Vice President of Research



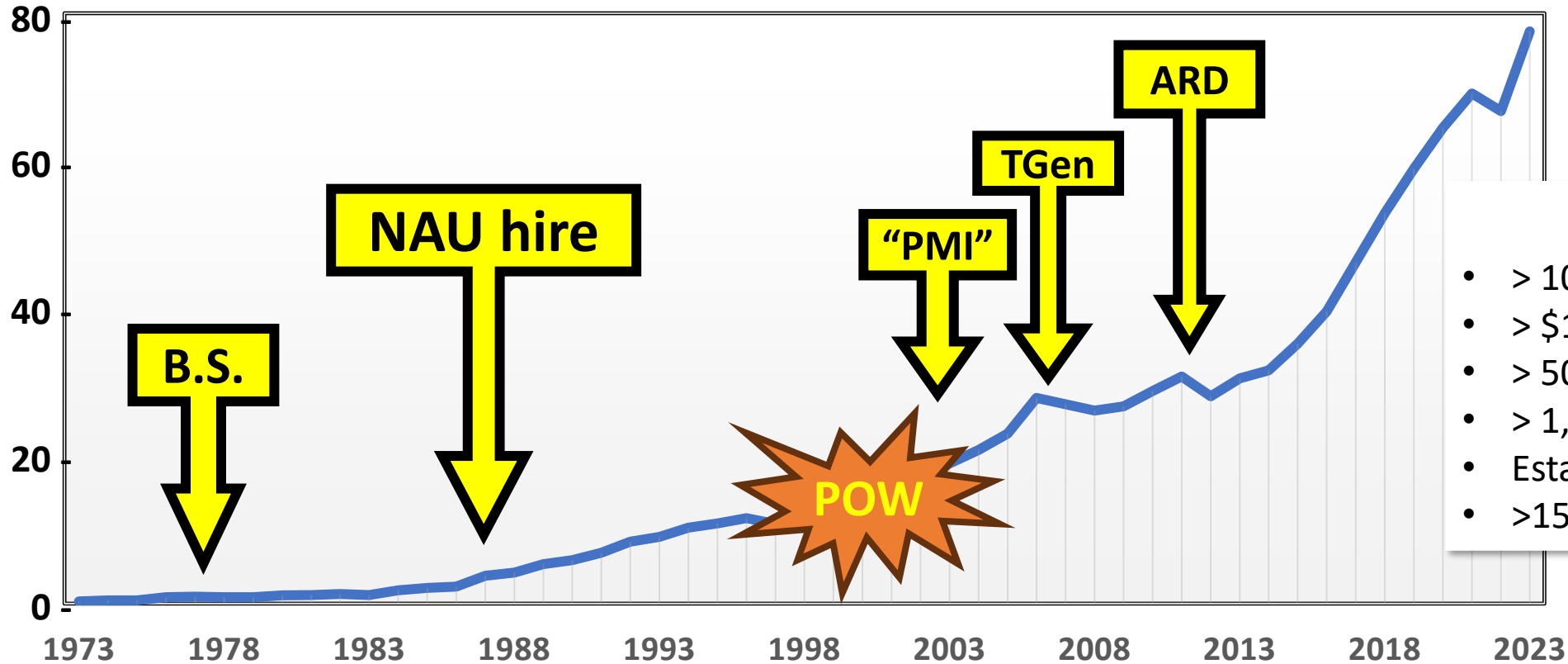


# Dr. Jason Wilder

VP for Research, 2021- Present



- Identify, support, and grow foci of “distinctive research excellence”
- Strategic investment in new areas with strong potential.
- Strengthening research administrative capacities to support the rapid rise in NAU’s research activity.
- Supporting a broad base of Principal Investigators who are advancing research at NAU;
- Continued focus on alignment of NAU’s research program with its student- and community-focused mission.



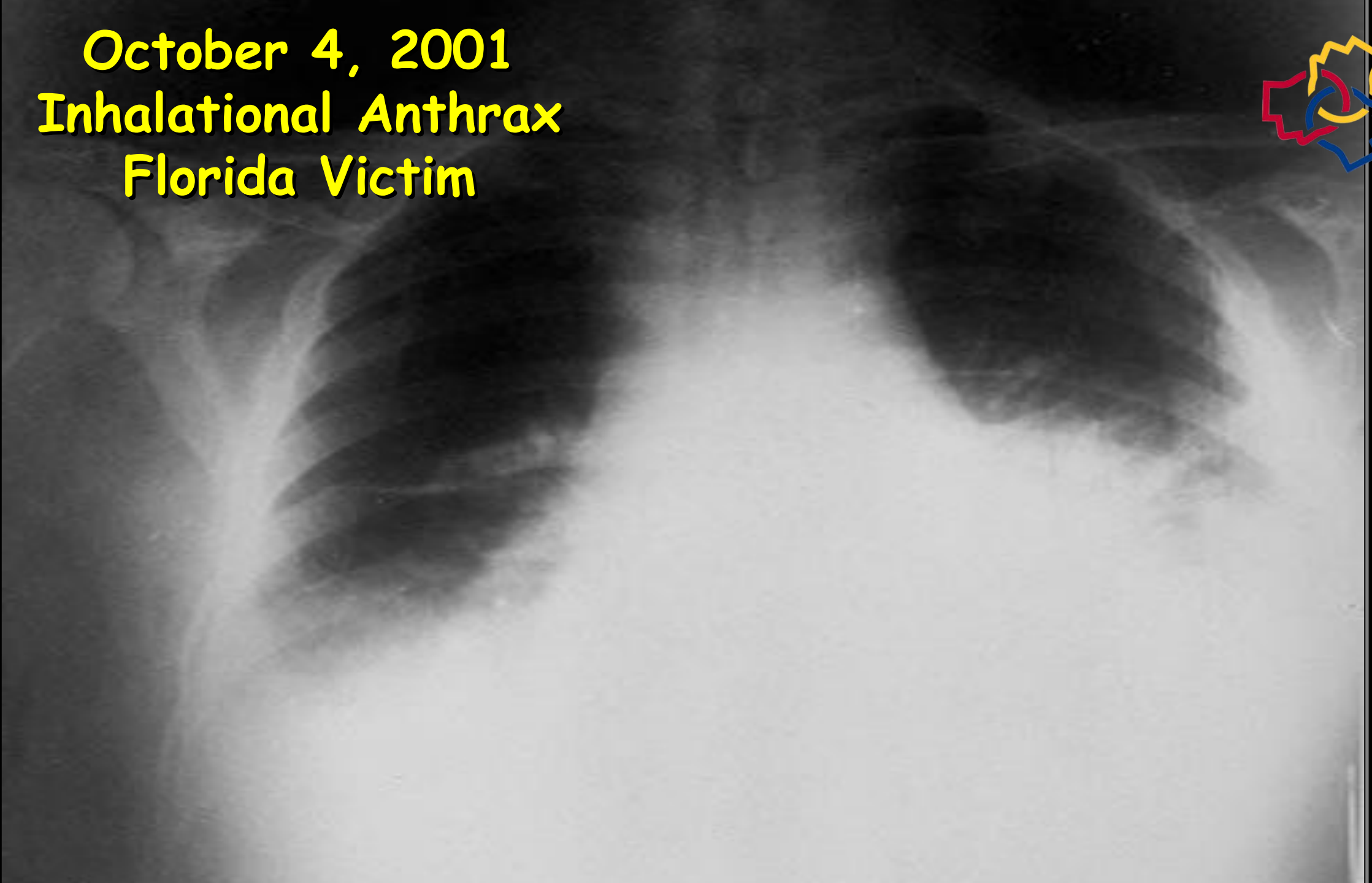
Year of NSF Herd Funding

## Over 35 Years

- > 100 Grants & Contracts
- > \$100M in funding
- > 500 Research Papers
- > 1,000 trainees
- Established 2 Res. Centers
- >150 researchers employed



**October 4, 2001  
Inhalational Anthrax  
Florida Victim**

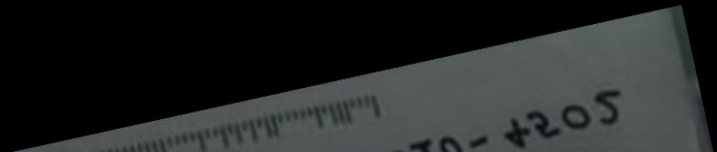
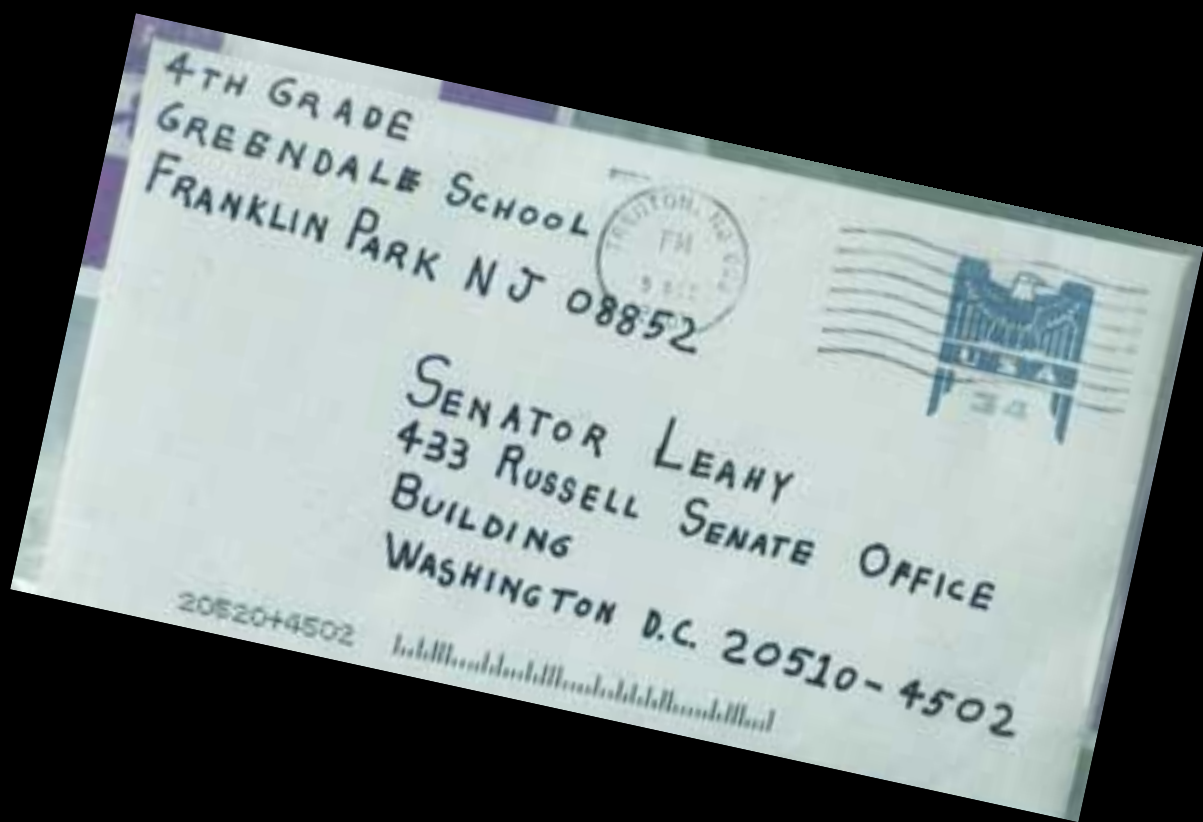


# Anthrax Letter Attacks October 2001



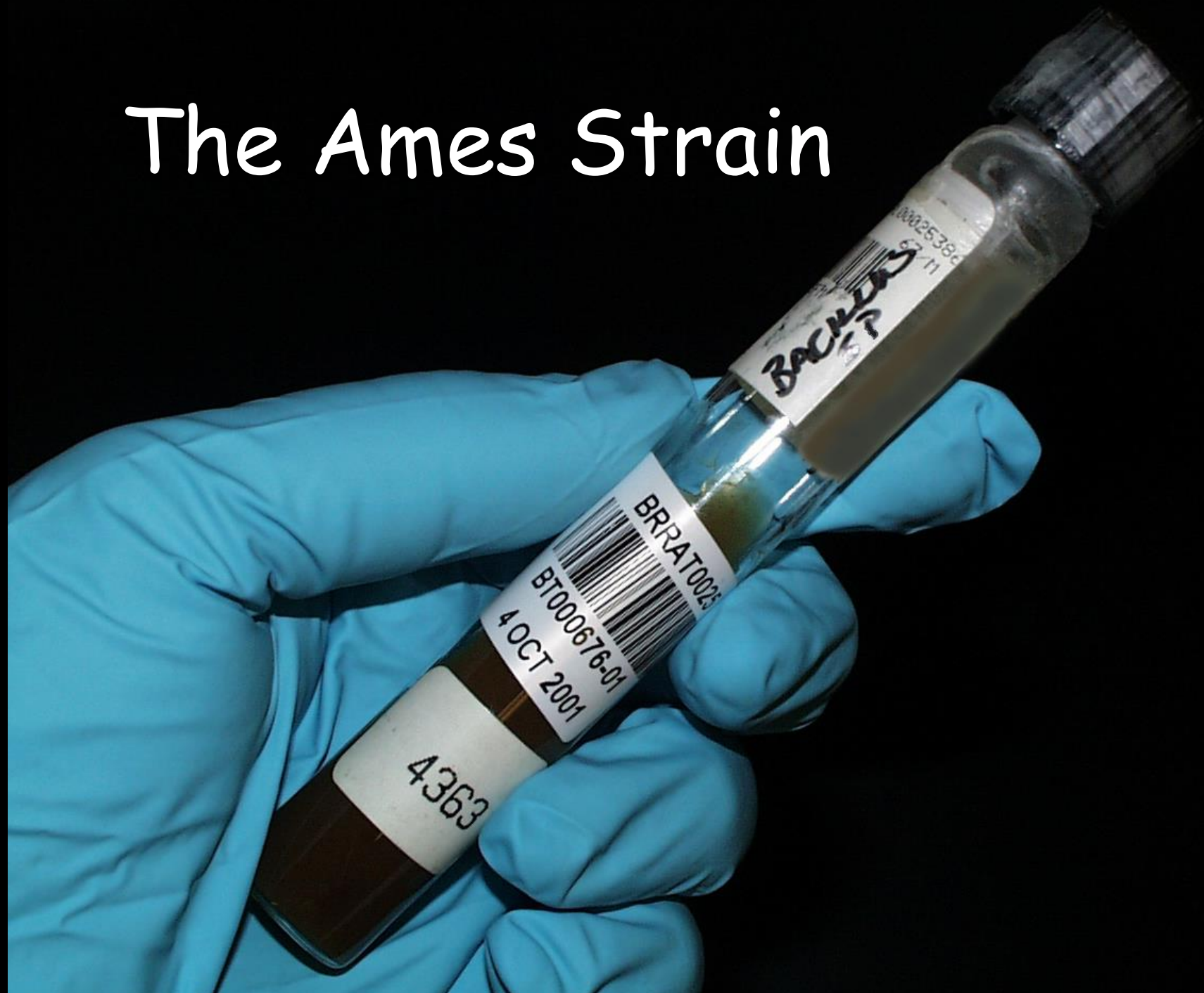
09-11-01

THIS IS NEXT  
TAKE PENACILIN Now  
DEATH TO AMERICA  
DEATH TO ISRAEL  
ALLAH IS GREAT





# The Ames Strain





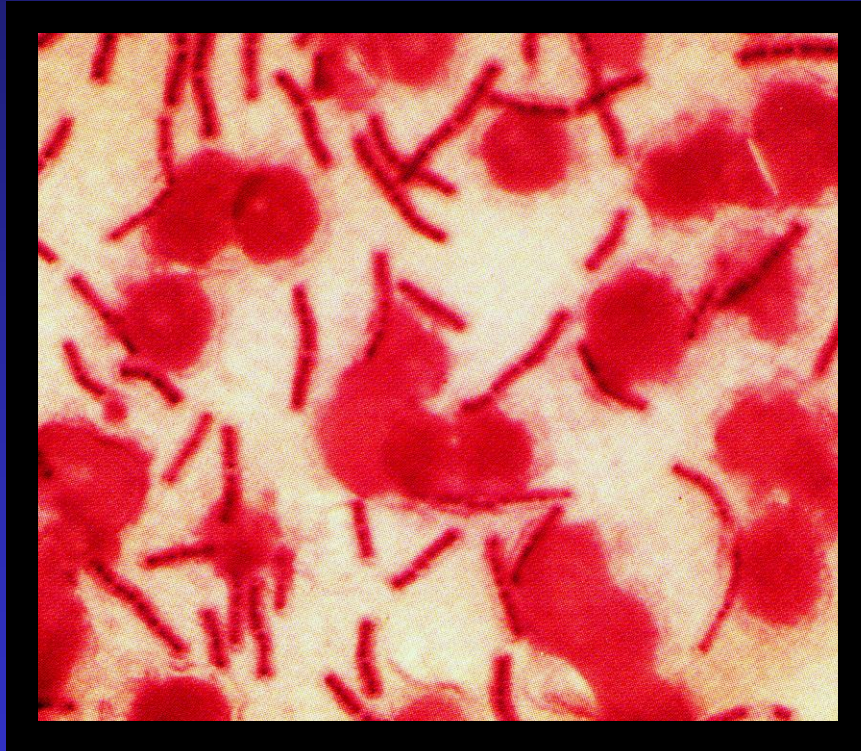
Anthrax is a natural disease



# *Bacillus anthracis*

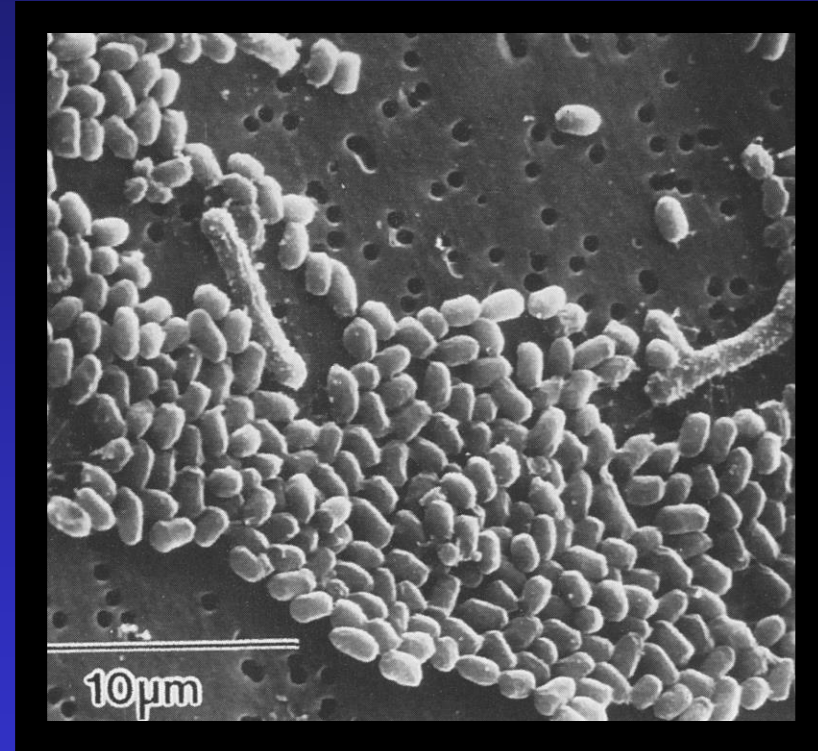


**Blood**



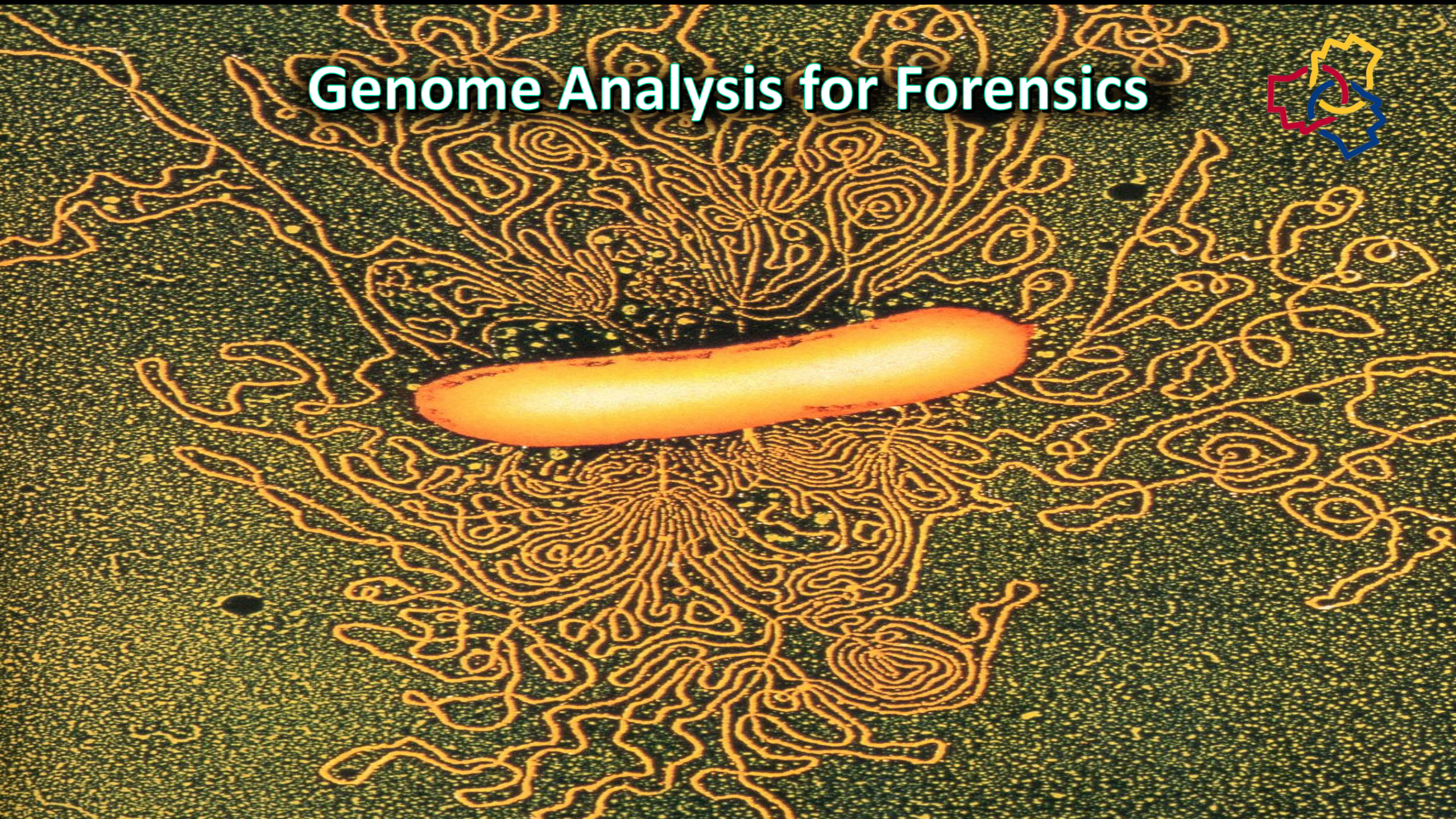
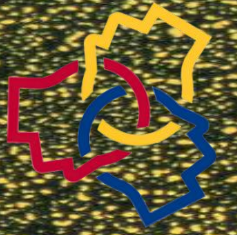
**Vegetative Cells**

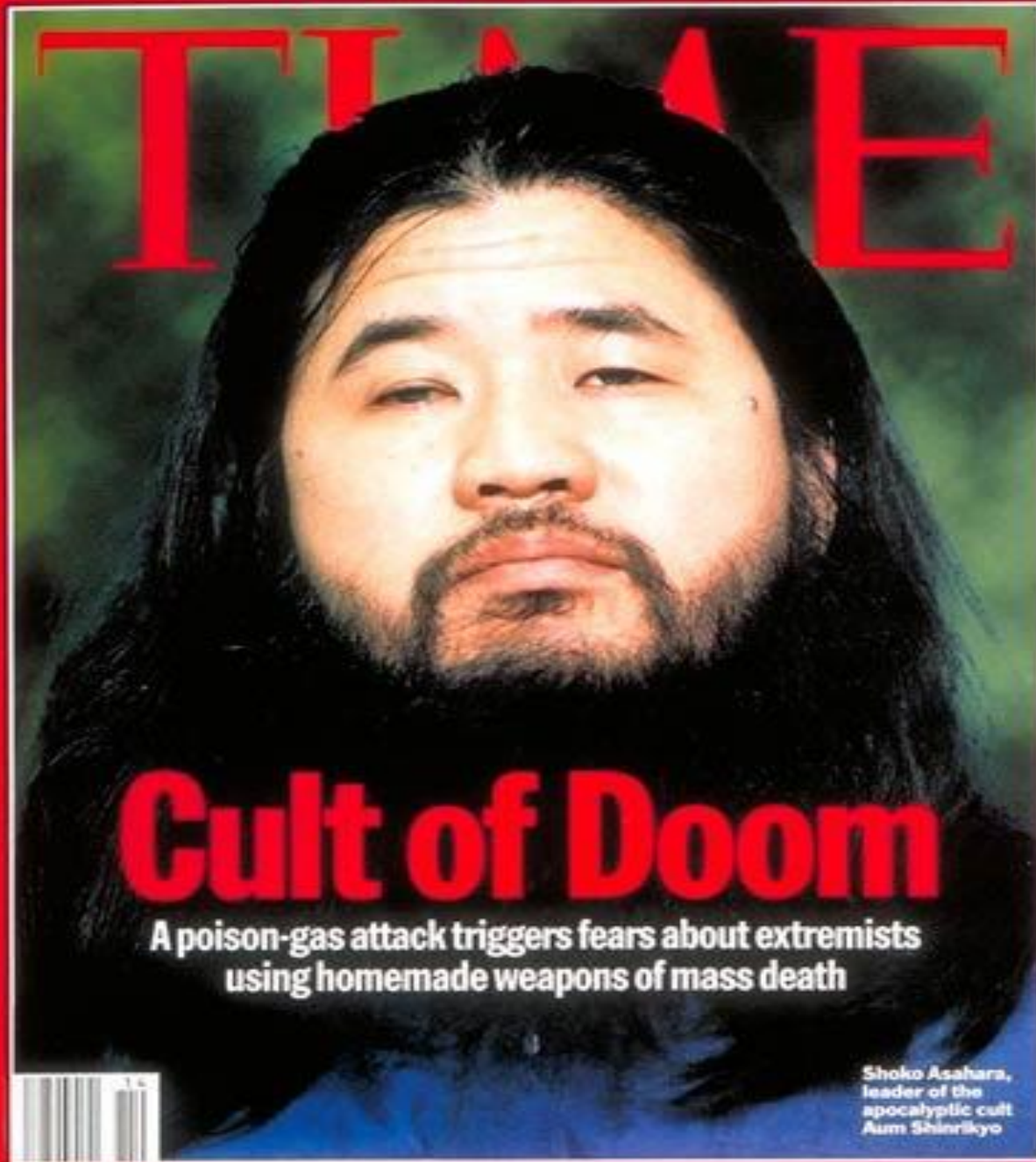
**Environment**



**Spores**

# Genome Analysis for Forensics





TIME

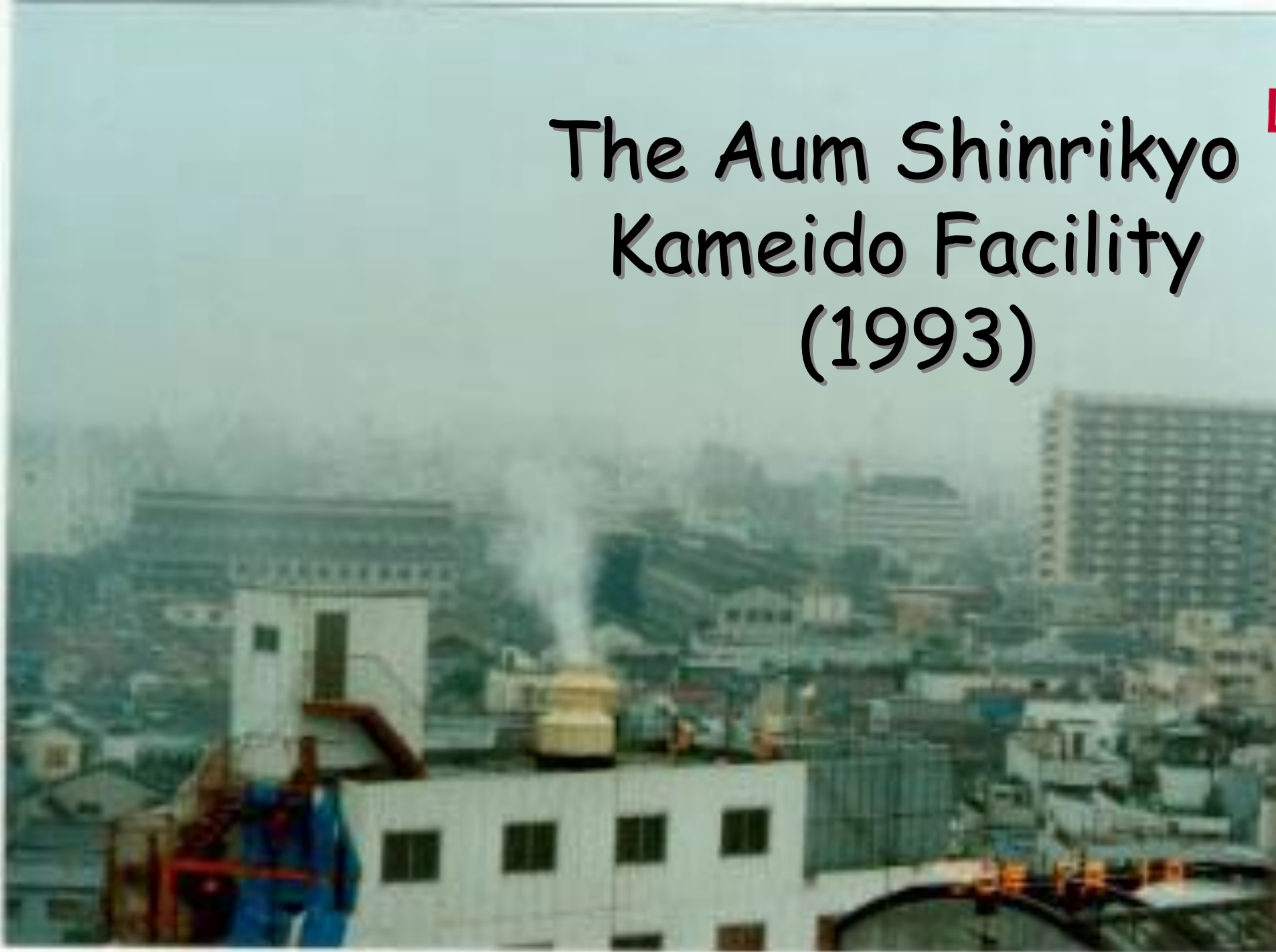
# Cult of Doom

A poison-gas attack triggers fears about extremists using homemade weapons of mass death

Shoko Asahara,  
leader of the  
apocalyptic cult  
Aum Shinrikyo



# The Aum Shinrikyo Kameido Facility (1993)







Ken Alibek  
*BioHazard*

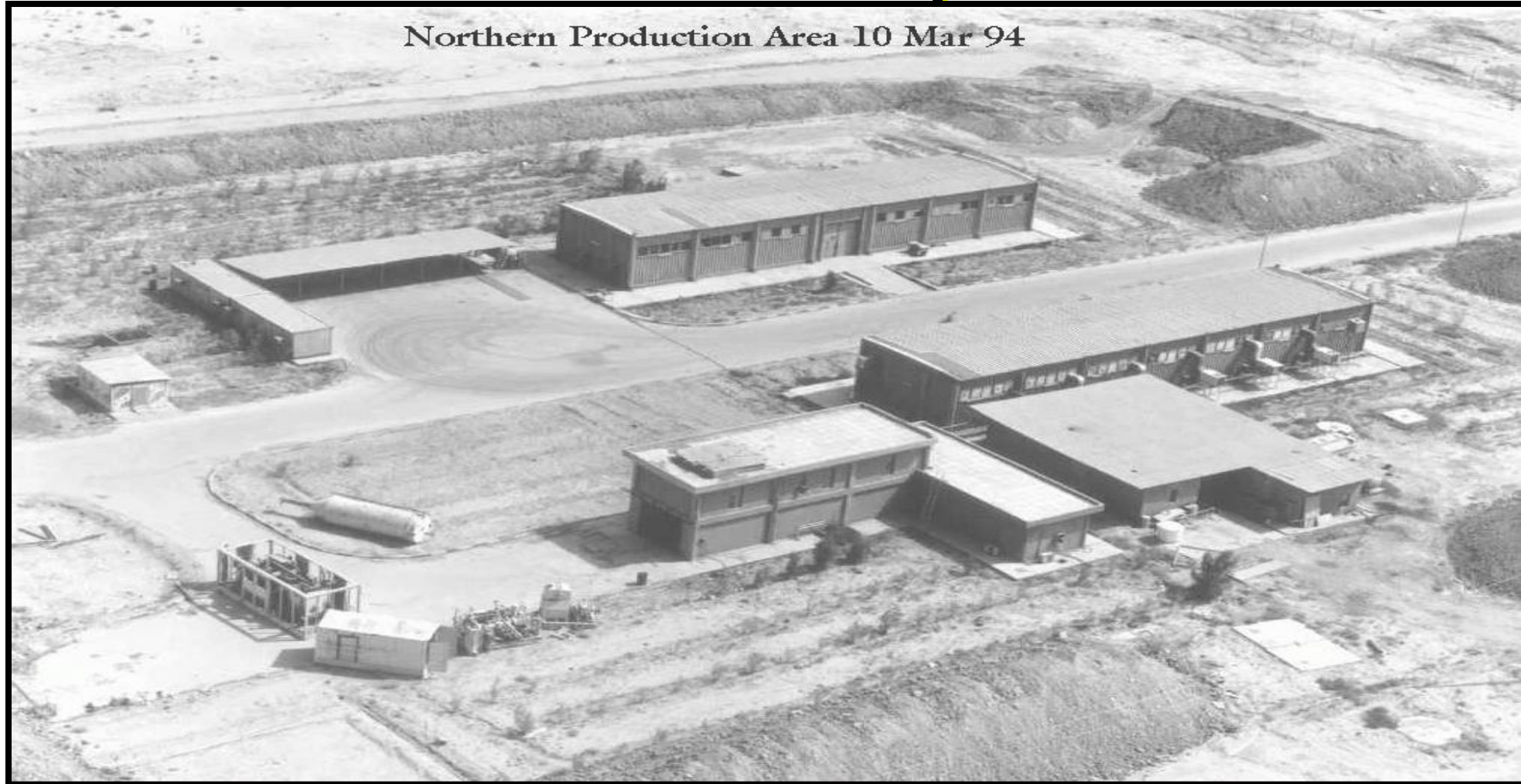


Compound 19 Sverdlosck



**Iraqi Weapons Programs**

# Al Hakam, Iraq, 1995



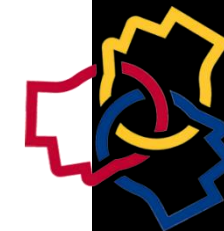
Remote desert facility, 80 km west of Baghdad, 4 x 6 sq km, spread out buildings and high security. Iraqi claim: **Yeast production plant for chicken feed**

Secretary of State  
Colin Powell

*February 2003*



# RMR-1029



12 x 10L Fermentor Lots  
Made by DPG



RMR 1029  
Concentrated and pooled  
at USAMRIID

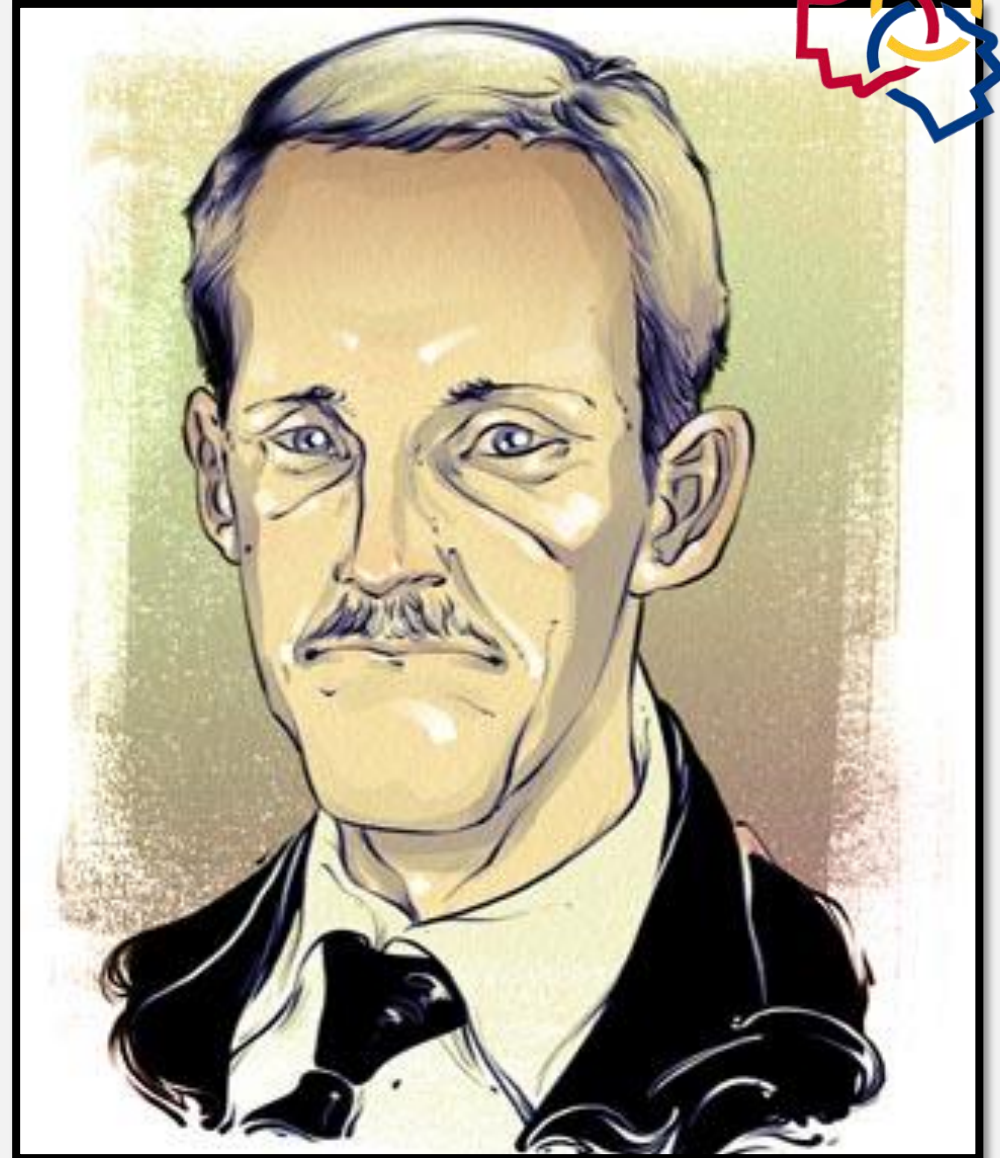


22 Flask Culture Lots  
Made at USAMRIID



Bruce Ivins

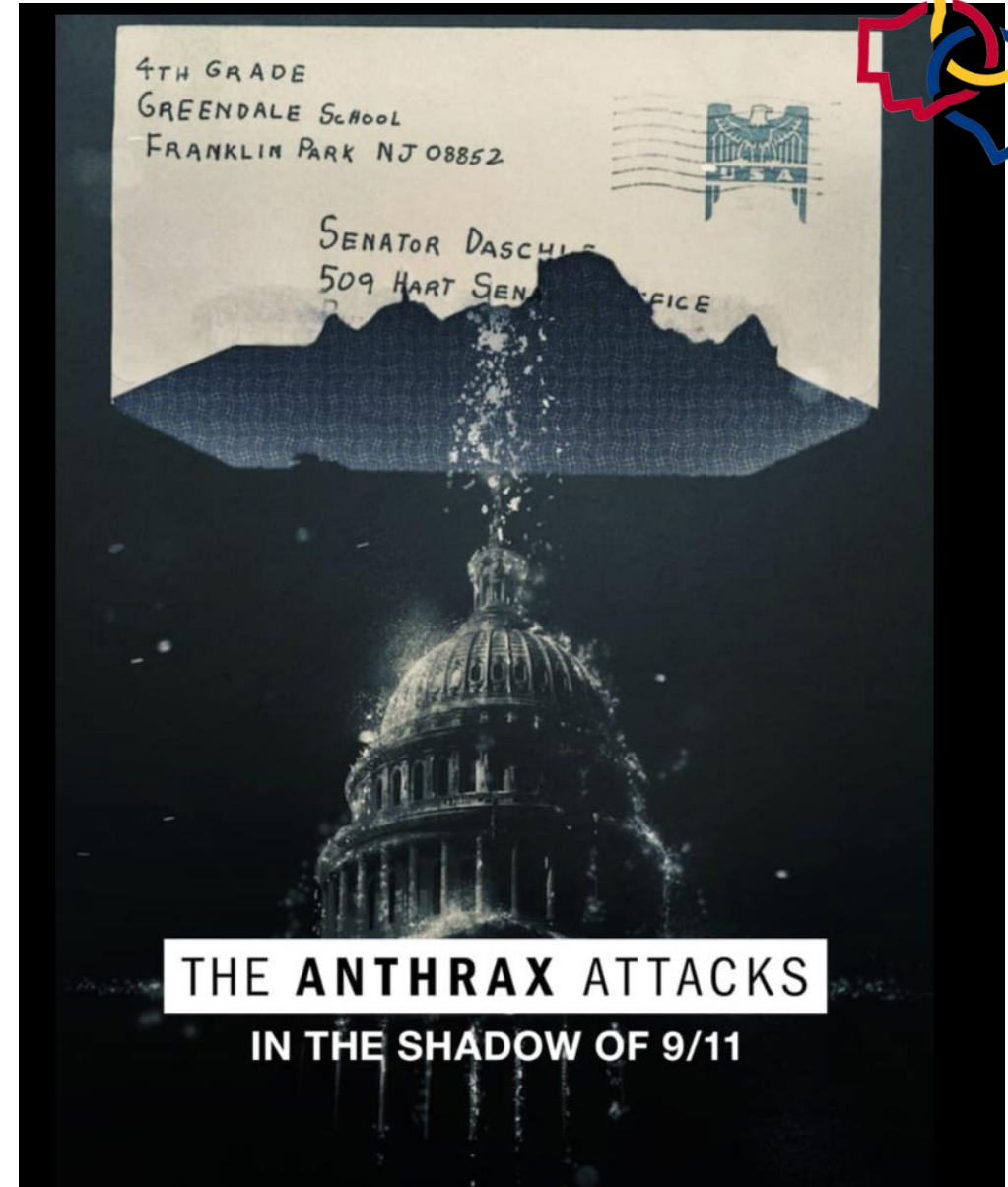
suicide July 2008

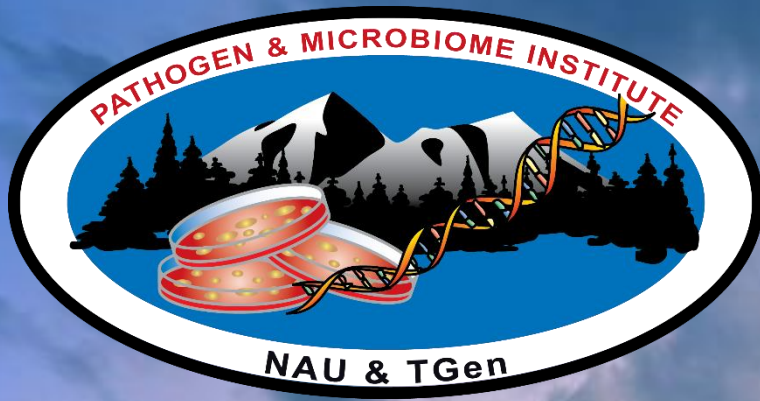


# NETFLIX



## A Docu-Drama





# Acknowledgements



## Vice Presidents

Henry Hooper, Carl Fox,  
Laura Huenneke, David Schultz,  
Bill Grabe, Jason Wilder

## Historical Sources

Platt Cline  
Richard & Sherry Mangum  
Wally Covington

## NSF HERD Data

Nick Bilyk  
Tom Champagne

The Pathogen and Microbiome  
Institute



# Thank You!

**Be sure to complete all 3  
TURAC surveys for a chance  
to win a **\$25 gift card!****

