



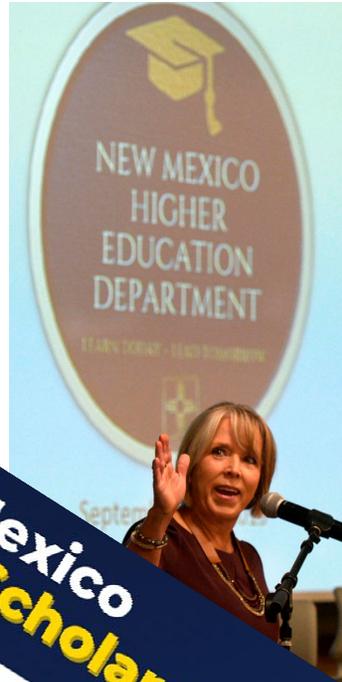
**EDUCATION IN A MULTICENTURY ARC**

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**JAMES PAUL HOLLOWAY  
PROFESSOR OF NUCLEAR ENGINEERING**

**PROVOST AND EXECUTIVE VICE PRESIDENT FOR ACADEMIC AFFAIRS**

UNIVERSAL FREE  
PUBLIC COLLEGE  
&  
CANCEL STUDENT  
LOAN DEBT



**New Mexico Opportunity Scholarship**

Tuition-free college  
for recent high-school  
graduates

Tuition-free two-year  
community college  
- for everyone



FREE TUITION FOR NM STUDENTS



*Dear Sir,*

*I have to acknowlige the receipt of your favor of May 14. in which you mention that you have finished the 6. first books of Euclid, plane trigonometry, surveying & algebra and ask whether I think a further pursuit of that branch of science would be useful to you. there are some propositions in the latter books of Euclid, & some of Archimedes, which are useful, & I have no doubt you have been made acquainted with them. trigonometry, so far as this, is most valuable to every man, there is scarcely a day in which he will not resort to it for some of the purposes of common life; the science of calculation also is indespensible as far as the extraction of the square & cube roots. Algebra as far as the quadratic equation & the use of logarithms are often of value in ordinary cases: but all beyond them is but a luxury; a delicious luxury indeed; but not to be indulged in by one who is to have a profession to follow for his subsistence.*



*in this light I view the conic sections, curves of the higher orders. perhaps even spherical trigonometry, algebraical operations beyond the 2<sup>d</sup> dimension, and fluxions. . . . I have indulged myself in these observations to you, because the evidence cannot be unuseful to you of a person who has often had occasion to consider which of his acquisitions in science have been really useful to him in life, and which of them have been merely a matter of luxury.*

1799



# Thomas Jefferson

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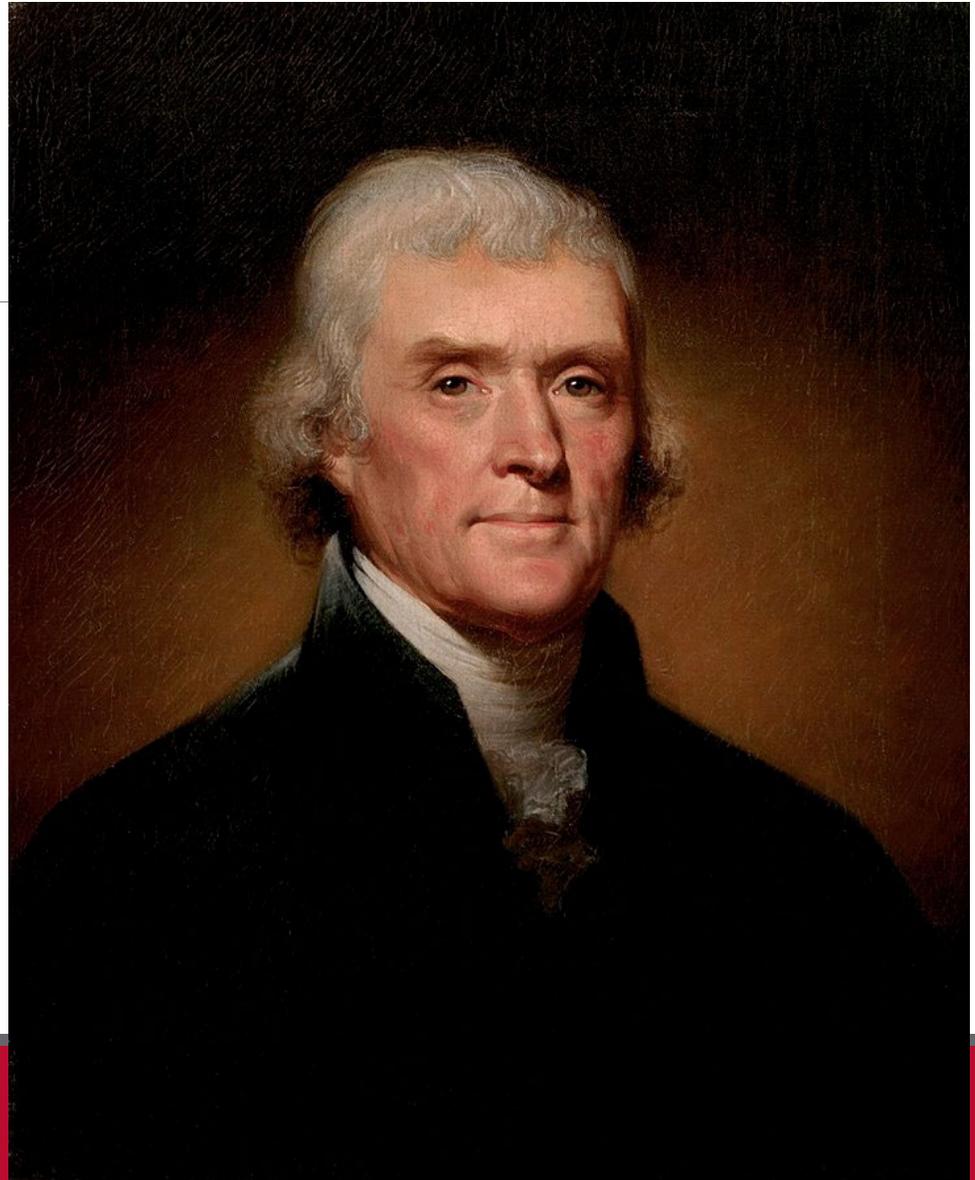
English school at age 5

Continued schooling at age 9 to study Latin, Greek and French

Entered William & Mary at age 16 and graduated at 18.

*“...a certain Place of Universal Study, a perpetual College of Divinity, Philosophy, Languages, and other good arts and sciences...”*

*Royal Charter for William & Mary*



# John Adams

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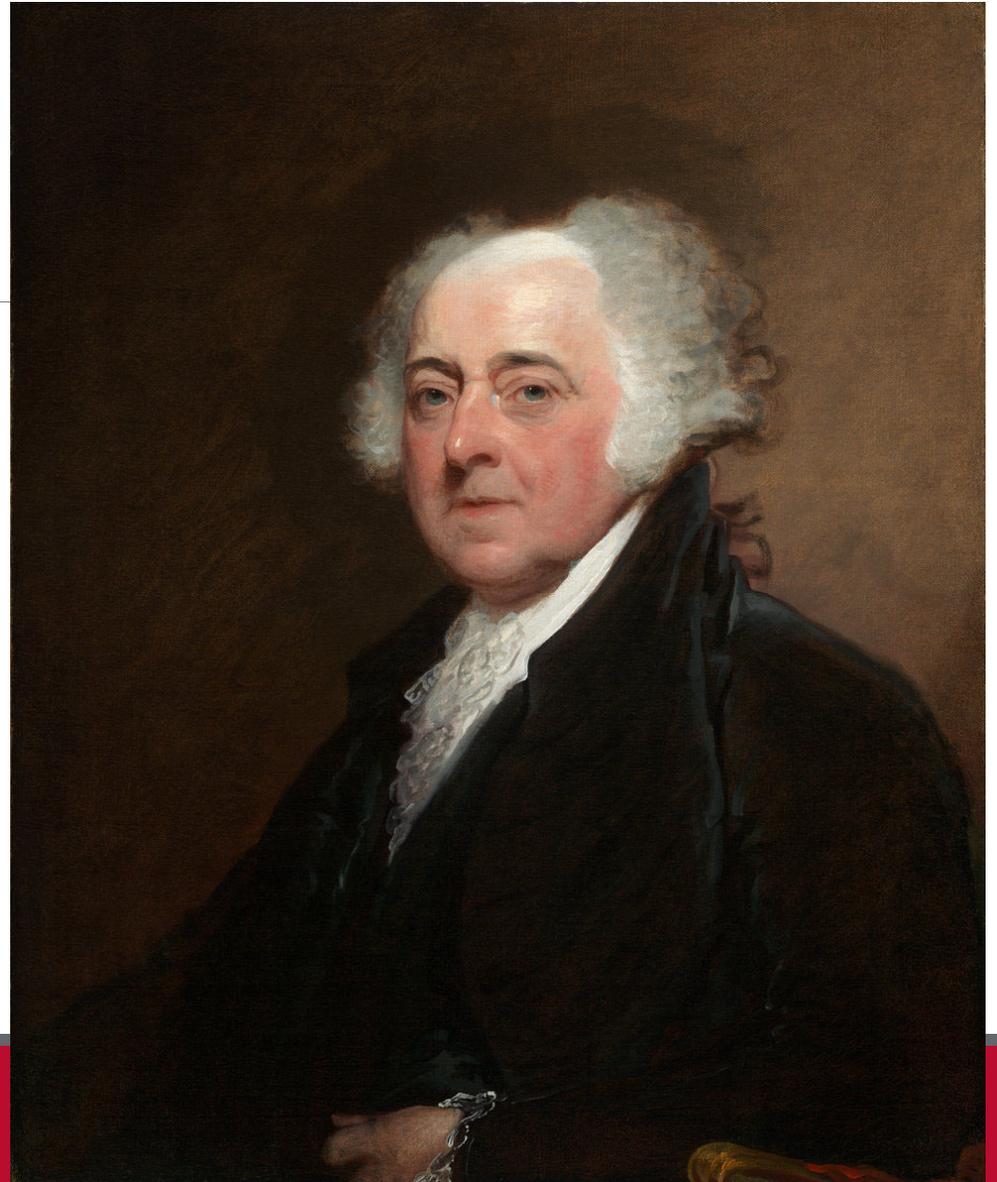
Dame school at age 6

Continued schooling at Braintree Latin School to study Latin, rhetoric, logic and arithmetic

Entered Harvard at age 16 and graduated at 20.

Earned Artium Magister at age 22

*“...to advance learning and perpetuate it to posterity, dreading to leave an illiterate ministry to the churches when our present ministers shall lie in the dust...”*



# American Colleges in the 19<sup>th</sup> Century

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Founded in small towns especially during westward expansion

Civic boosterism – create a cultural center rather than a sleepy farm town  
“a tincture of social vanity” – *Spiller, Literary History of the United States*

Raise property values

Religious growth in a culture where no one church dominated

No state control

Civic leaders & church officials rent a building, hire a president, and try to draw tuition paying students

**Result: Many small, underfunded, parochial, academically weak institutions**



# University of Michigan

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Founded 1817 as the  
Catholepistemiad

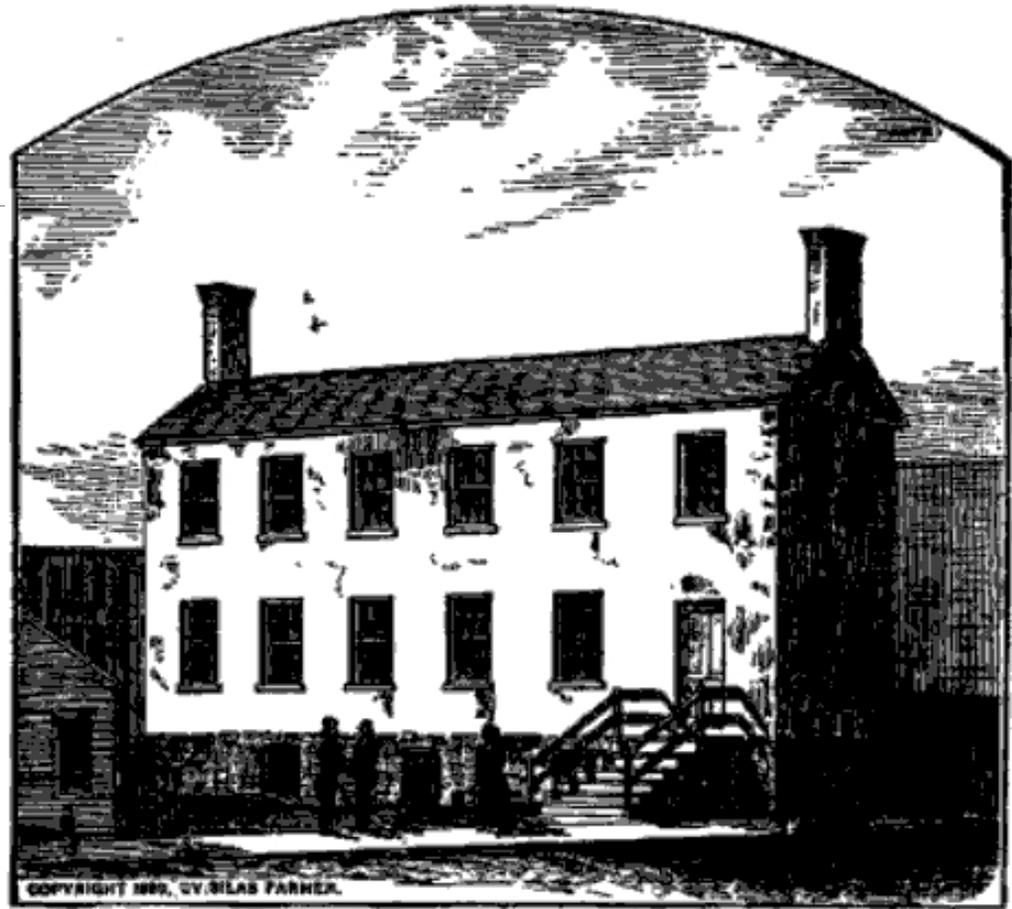
Called the College of Michigania and  
the College at Detroit

Opened 1818 at Bates & Congress in  
Detroit

Lower floor: English school

Upper floor: Classical school

Renamed University of Michigan in  
1821



# Growth of US Higher Education

Year	Number of Colleges	Colleges per million
1790	19	4.9
1830	50	3.9
1855	250	9.2
1865	563	16
1880	811	16
2012	4726	15
2019	4298	13

*From 1790 to 1880  
Europe rose from 111 to  
only 160 colleges.*

US courts granted  
colleges autonomy, and  
we never founded a  
national university

Note:

- In 2012 there were 7253 Title IV institutions (23 per million)
- In 2015 there were 7021 Title IV institutions (22 per million)



# New Mexico

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7 four-year colleges (including 3 research universities)

17 two-year colleges

4 tribal schools

1 Military institute (associates degrees)

Over 15 institutions  
per million



# Small schools in rural environments

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In 1880 the average number of professors at a college was 14

In 1880 the average number of students in an institution of higher education was 131.

Colleges granted 17 degrees per year

31% of colleges were in the Midwest and 28% in the Southwest.

Colleges were not established in response to demand, they were established to meet the religious, economic, and social needs of their founders



# How do you compete in this environment?

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Invent college sports

Invent fraternities and sororities

Create the student experience!

Concern for survival  
rather than academic  
excellence



# Changes in work

Late 19<sup>th</sup> century shifts to corporate model and white collar work

To pass advantage to their children, parents could no longer pass along their shop, but upper middle class families could provide education

## A passage to advantage

Rapidly expanding high school opportunities led wealthier families to look to college for that educational advantage



# Tensions

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Liberal vs. Professional

Access vs. Advantage

Public vs. Private good

Liber – Free. Education for it's own sake, or suitable for the cultivation of a free human being.

Liberal arts education is an enlightenment idea bringing together the ideas of free will and the medieval trivium (grammar, logic, rhetoric) and the quadrivium (arithmetic, geometry, music and astronomy)



# The egalitarian vs. the elite

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For Jefferson, English School was an elite experience for which is family paid.

Then Grammar School became free...

Then Middle School became free...

By the turn of the 20<sup>th</sup> century *High Schools* were proliferating

Then High School became free...

*Even compulsory...  
34 states in 1900*

*The High School Movement 1910 - 1940*

- ✓ Colleges and universities had to adapt
- ✓ Parents and students looking for advantage had to adapt



Slatington HS  
Founded: 1890

# Today

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States are:

- Emphasizing college readiness as a goal of high school
- Making the college core general education curriculum standard (30 common credits, and even moving towards 60)

Making college “free:”

- Go Blue Guarantee
- Heart of Detroit Pledge
- Excelsior Scholarship
- Over 20 states have zero tuition community college systems (OR, NV, AK, NJ, MD, TN, NY, ...)

Bernie Sanders, Elizabeth Warren, Kamala Harris



# What next?

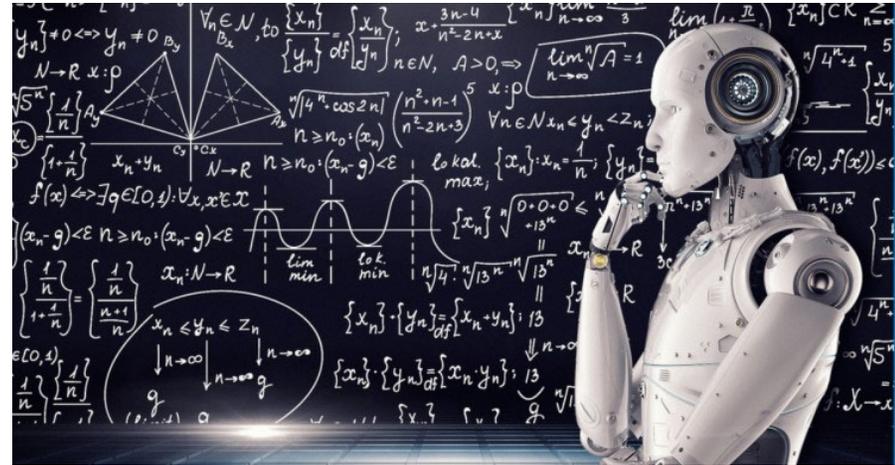
- ✓ Colleges and universities have to adapt
- ✓ Parents and students looking for advantage have to adapt

Research universities must

Provide advantages at the undergraduate level that build on their strengths.

Develop post-baccalaureate education that:

- supports more learners
- Provides flexibility (not just degree programs)
- Provides advantages that learners want



# Thanks

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And yes, I'm happy to answer questions about the NM Opportunity Scholarship, because I know you want to ask.... just for a friend of course.

