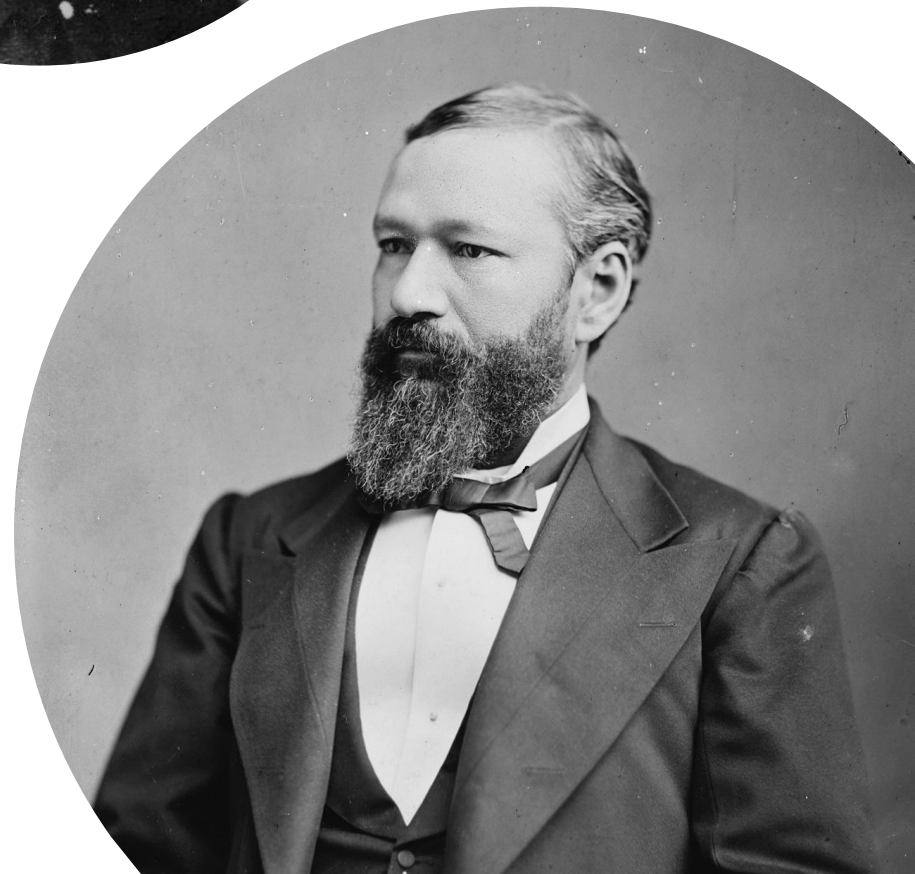


Studying Euclid in  
the Arkansas Delta:  
the Branch Normal  
College

# An 1880 debate

- [Black cadets at West Point] have all displayed a marked deficiency in deductive reasoning, and have taken very low rank in mathematical subjects. –Peter S. Michie, “Caste At West Point”
- Prof. Michie claims that colored students cannot understand “deductive reasoning,” so I beg leave to state a fact which has some bearing upon that point. A few days ago, I witnessed the recitation of the Algebra class in the Branch Normal College. The lesson was the application of “Sturm's Theorem” and Horner's Method to finding the roots of roots of higher equations. –Toothpick, *Weekly Louisianian*





# The National Debate

- Debate was nationally significant
- West Point was accused of racism
- 9 out of 10 Black students admitted had left without a degree
- One student was facing a court martial after reporting an assault
- Prof. Michie's argued that West Point wasn't racist, Black students were just bad at math



THE WEST POINT OUTRAGE—THE CASE OF HONOR IN MICHIE.—Drawing by W. A. Rouse

# Toothpick's Visit

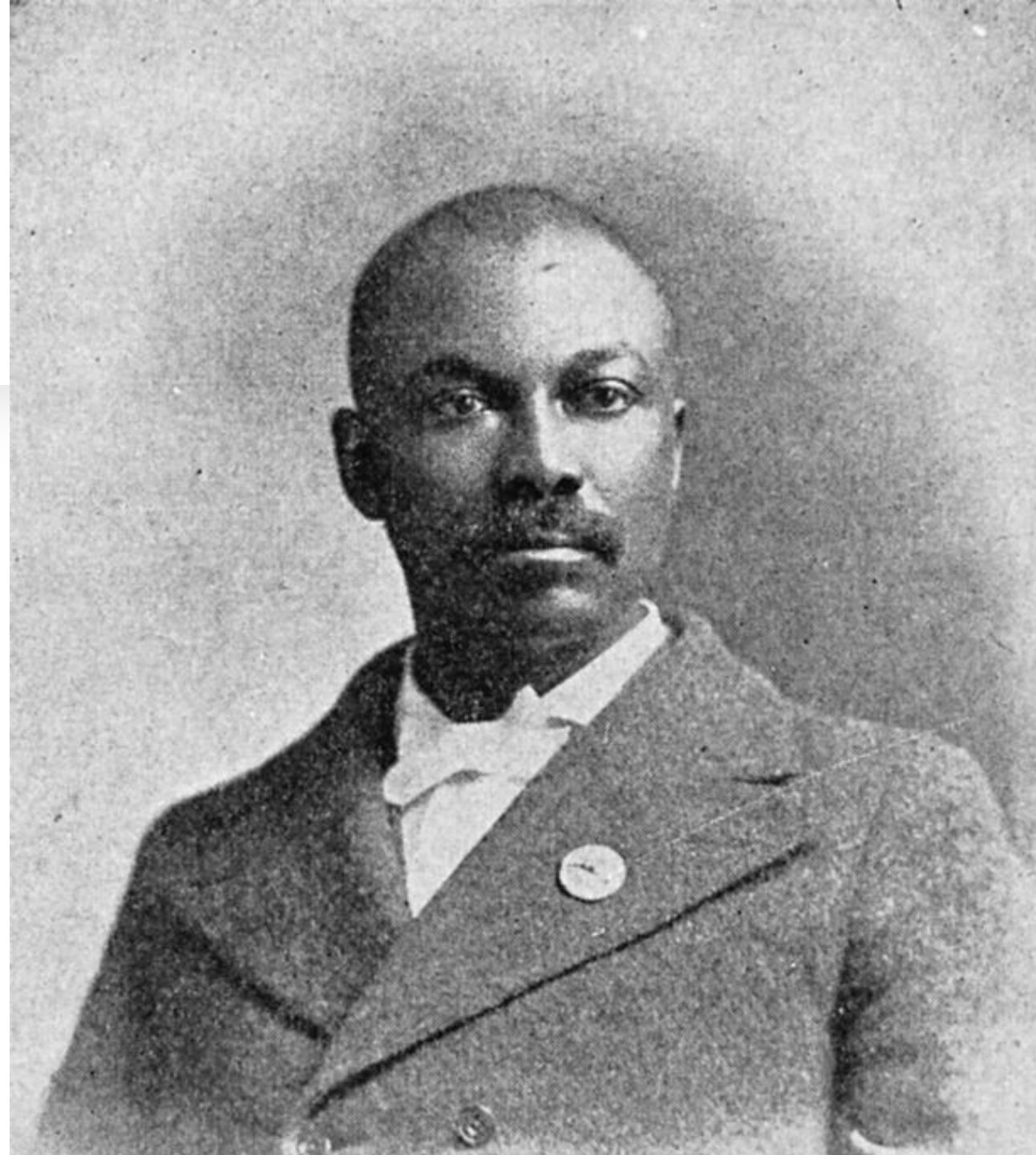
- Toothpick had just visited the Branch Normal College in Arkansas
- The Branch Normal College (now the University of Arkansas at Pine Bluff) is the state's first public Historically Black College
- It had been founded a few years before Toothpick's visit
- J. C. Corbin was the founding president

# How can we study mathematics at the Branch Normal College at Pine Bluff?

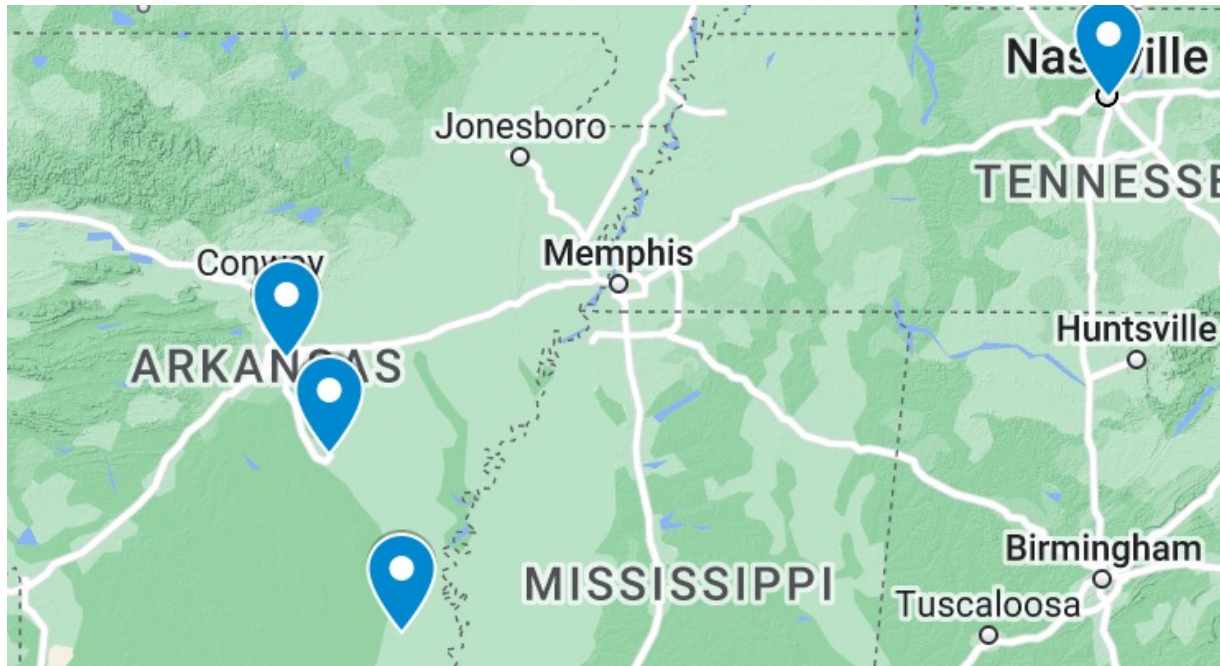
- Biography of the faculty (J. C. Corbin – well-documented)
- Biography of the students
- Publications by the faculty
- Textbooks used by the students
- Mathematically connections with other places
- Broader math/education context
- Ideas I have missed

# How to study students: Joseph A. Booker

- Booker was 21 years old
- Born in 1859 on plantation near Portland
- Was one of 50+ enslaved workers
- Both parents died when he was an infant. Raised by grandmother

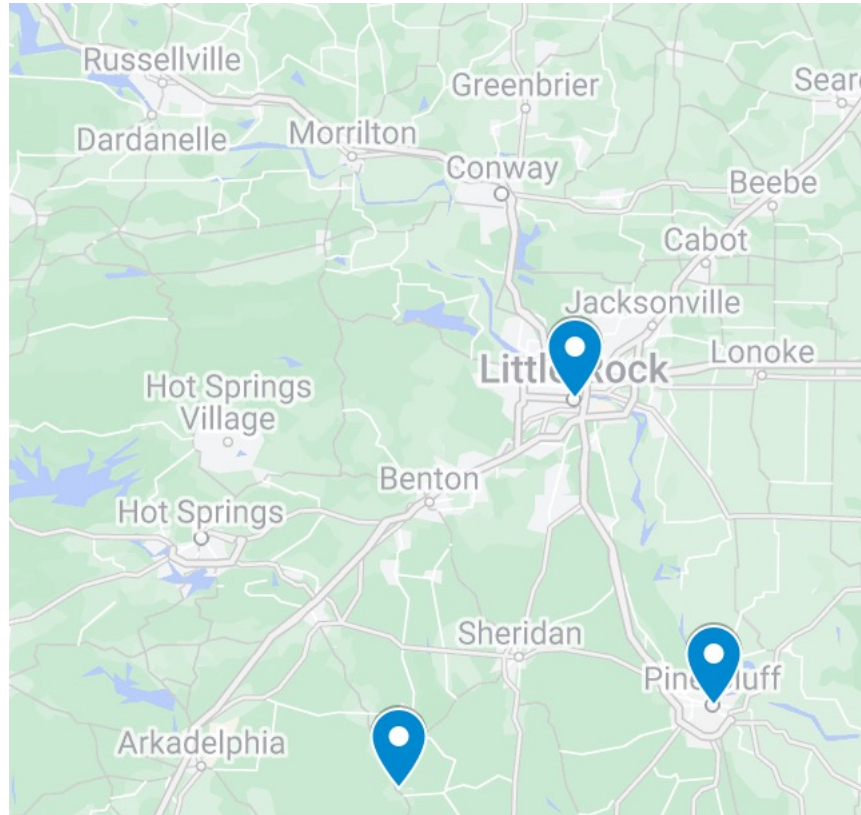


# More on Joseph A. Booker



- Completed education at Roger Williams U. in Nashville
- Served as a Baptist minister and president of Arkansas Baptist College

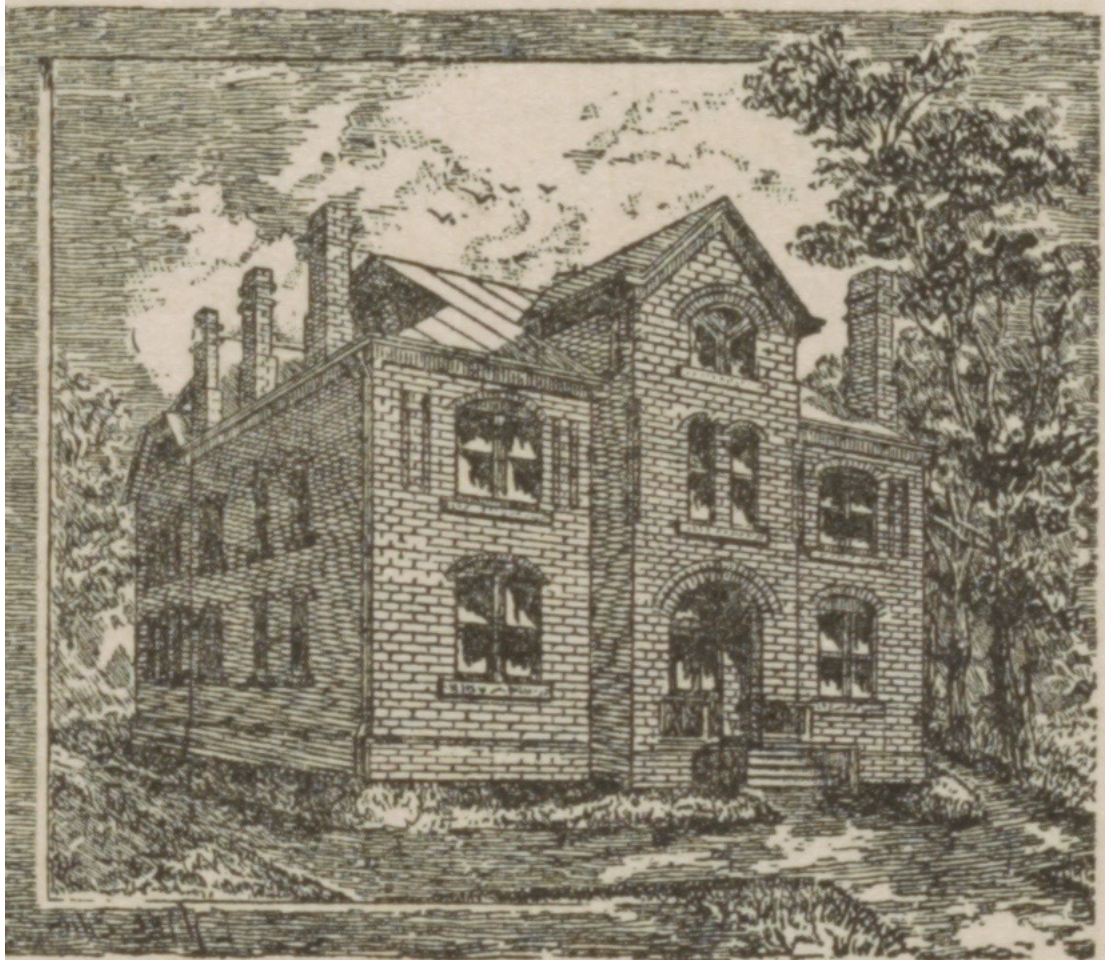
# Another student: Joseph Samuel Badgett



- Born in 1864 on a small farm in Tulip
- Mixed race: father was also the father of his enslaver
- Given land after the Civil War
- Education: private lessons by “old white woman” + public school run by a Branch Normal student



# A third student: Lucinda Alexander



- Born around 1862 in Louisiana
- Married to Black Union veteran, Lawson Alexander
- Hard to research female students because of last name changes

# How to read faculty publications?

- Problem isn't original to Corbin
- Was originally written by Lewis Carroll
- Published in many newspapers

110. Proposed by J. C. CORBIN, Pine Bluff, Ark.

I find the annexed problem in a secular newspaper:

Put down any sum of pounds, shillings and pence under £11, taking care that the number of pence is less than the number of pounds. Reverse this sum, putting pounds in the place of pence, and subtract from original amount. Again reverse this remainder and add. The result in all cases will be £12 18s 11d, neither more nor less, whatever the amount with which we start.

Will some of the MONTHLY's contributors verify and explain or disprove it?

\*\*\* Solutions of these problems should be sent to J. M. Colaw not later than Dec. 10.

# How to read faculty publications?

- Problem isn't original to Corbin
- Shows Corbin knew linear algebra
- Had a copy of Muir's *A Treatise on the Theory of Determinants*

306. Proposed by J. C. CORBIN, Pine Bluff, Ark.

Muir gives the following problem:

$$\text{Prove: } \begin{vmatrix} 1 & a & a & a^2 \\ 1 & b & b & b^2 \\ 1 & c & c' & cc' \\ 1 & d & d' & dd' \end{vmatrix} = (a-b) \begin{vmatrix} 1 & ab & a+b \\ 1 & cd' & c+d' \\ 1 & c'd & c'+d \end{vmatrix}$$

which, of course, can be solved by finding the terms of both determinants. Is there any method of changing from one form to the other which is direct?

# How to read textbooks?

Robinson's Shorter Course.

THE

COMPLETE

A L G E B R A,

DESIGNED FOR USE IN

SCHOOLS, ACADEMIES, AND COLLEGES.

MINNESOTA

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BY

JOSEPH FICKLIN, Ph.D.,

PROFESSOR OF MATHEMATICS IN THE UNIVERSITY OF THE STATE OF MISSOURI.

## STURM'S THEOREM.

**612.** If the coefficients of  $f(x)$  are real and the equation  $f(x) = 0$  has no equal roots, then, if  $x$  is made to assume, in succession, all real values from  $-\infty$  to  $+\infty$ , the sign of  $f(x)$  will change as often as  $x$  passes a real root of the equation (**608**, Cor. 3). Sturm's Theorem enables us to determine the number of such changes of sign.

**613. Sturm's Functions.**—Let  $f(x) = 0$  be an equation whose coefficients are real, and which is freed from equal roots (**607**); and let  $f'(x)$  be the first derivative of  $f(x)$ .

We now apply to  $f(x)$  and  $f'(x)$  the process of finding their G. C. D. (**125**), with this modification, namely: 1. *When a remainder is found which is of a lower degree than the corresponding dividend and divisor, we change its sign and use the result for the next divisor.* 2. *We neither introduce nor reject a negative factor in preparing for division.*



# How to read textbooks?

THE  
NORMAL  
ELEMENTARY GEOMETRY:

EMBRACING A BRIEF TREATISE ON

Mensuration and Trigonometry.

DESIGNED FOR

ACADEMIES, SEMINARIES, HIGH SCHOOLS, NORMAL SCHOOLS,  
AND ADVANCED CLASSES IN COMMON SCHOOLS.

BY

EDWARD BROOKS, A. M.,

PROFESSOR OF MATHEMATICS IN PENNSYLVANIA STATE NORMAL SCHOOL, AND AUTHOR OF THE NORMAL PRIMARY ARITHMETIC, NORMAL MENTAL ARITHMETIC, NORMAL WRITTEN ARITHMETIC, ETC.

## POSTULATES.

32. The following postulates are self-evident problems resulting from the preceding definitions:—

1. A straight line can be drawn from one point to another.
2. A straight line may be prolonged to any length.
3. A line or an angle may be bisected.
4. An angle may be described equal to a given angle.

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GEOMETRY.

5. A line may be drawn through a given point parallel to a given line.
6. A perpendicular may be drawn to a given line from a point on the line or without it.