LIBRARY
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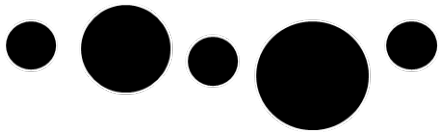
Online Office Hours

We'll get started at 2 ET



Library of Congress

Online Office Hours

Welcome. We're glad you're here! Use the chat box to introduce yourselves. Let us know:

- ❑ **Your first name**
- ❑ **Where you're joining us from**
- ❑ **Why you're here**

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May 21, 2020

Mathematics and Primary Sources

Mathematics and Primary Sources

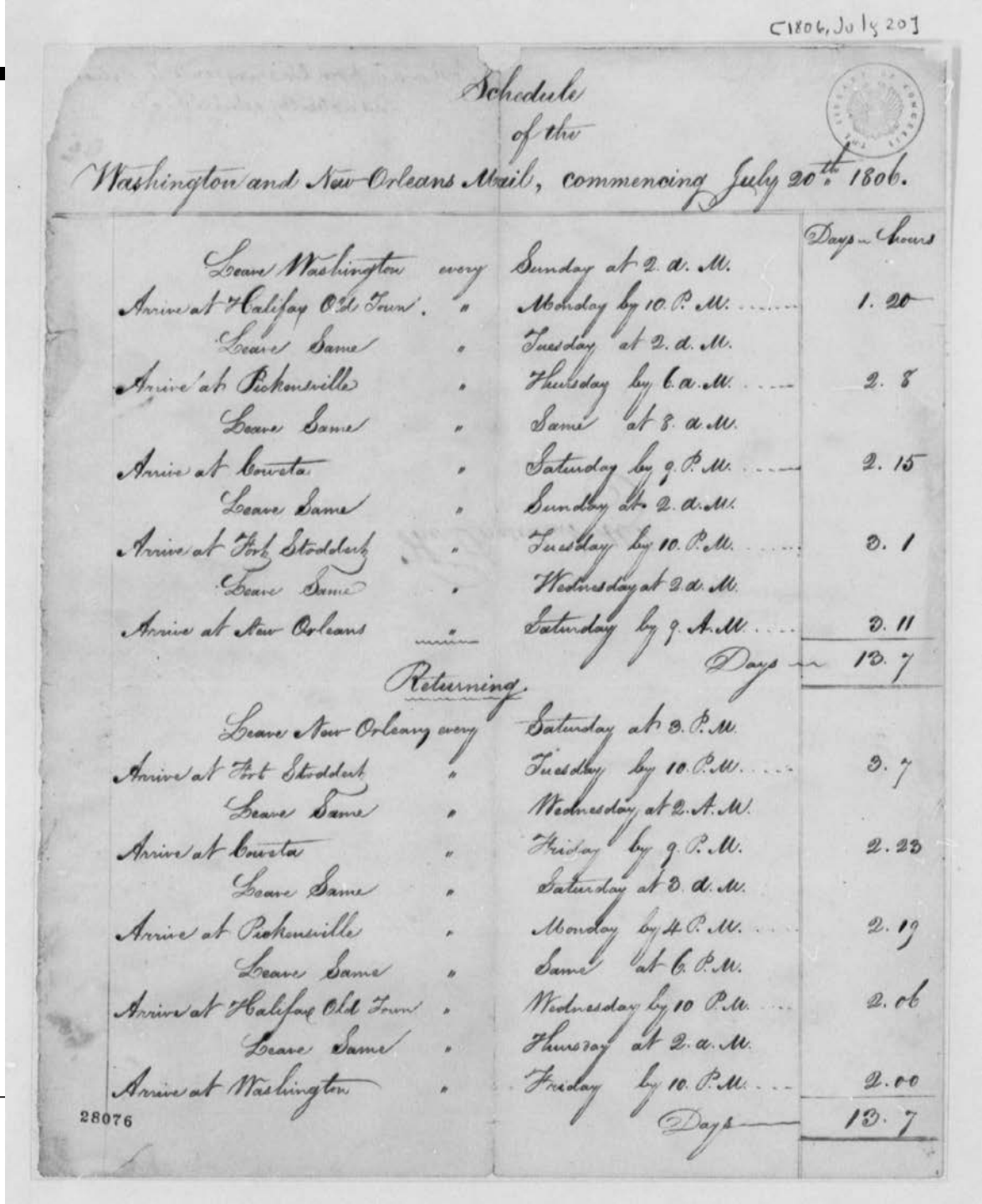
- What are some possibilities for analyzing primary sources through the lens of mathematics?
  - Numbers and Operations
  - Measurement
  - Geometry
  - Data Analysis/Statistics
  - Algebra

- How might students apply mathematics skills while building cross-disciplinary insights?

Numbers and Operations

The Evolving Postal System

What is the rate of mail delivery?



[1806, July 20]

Schedule
of the
Washington and New Orleans Mail, commencing July 20th 1806.

			Days — Hours
Leave Washington	every	Sunday at 2. a. M.	
Arrive at Halifax Old Town	"	Monday by 10. P. M.	1. 20
Leave Same	"	Tuesday at 2. a. M.	
Arrive at Pickensville	"	Thursday by 6. a. M.	2. 8
Leave Same	"	Same at 8. a. M.	
Arrive at Coosta	"	Saturday by 9. P. M.	2. 15
Leave Same	"	Sunday at 2. a. M.	
Arrive at Fort Stoddert	"	Tuesday by 10. P. M.	3. 1
Leave Same	"	Wednesday at 2. a. M.	
Arrive at New Orleans	"	Saturday by 9. A. M.	3. 11
		Days —	13. 7

Returning.

Leave New Orleans	every	Saturday at 3. P. M.	
Arrive at Fort Stoddert	"	Tuesday by 10. P. M.	3. 7
Leave Same	"	Wednesday at 2. A. M.	
Arrive at Coosta	"	Friday by 9. P. M.	2. 23
Leave Same	"	Saturday at 3. a. M.	
Arrive at Pickensville	"	Monday by 4. P. M.	2. 19
Leave Same	"	Same at 6. P. M.	
Arrive at Halifax Old Town	"	Wednesday by 10 P. M.	2. 06
Leave Same	"	Thursday at 2. a. M.	
Arrive at Washington	"	Friday by 10. P. M.	2. 00
		Days —	13. 7

28076

Schedule of Mail Deliveries from Washington, D.C. to New Orleans, July 20, 1806.

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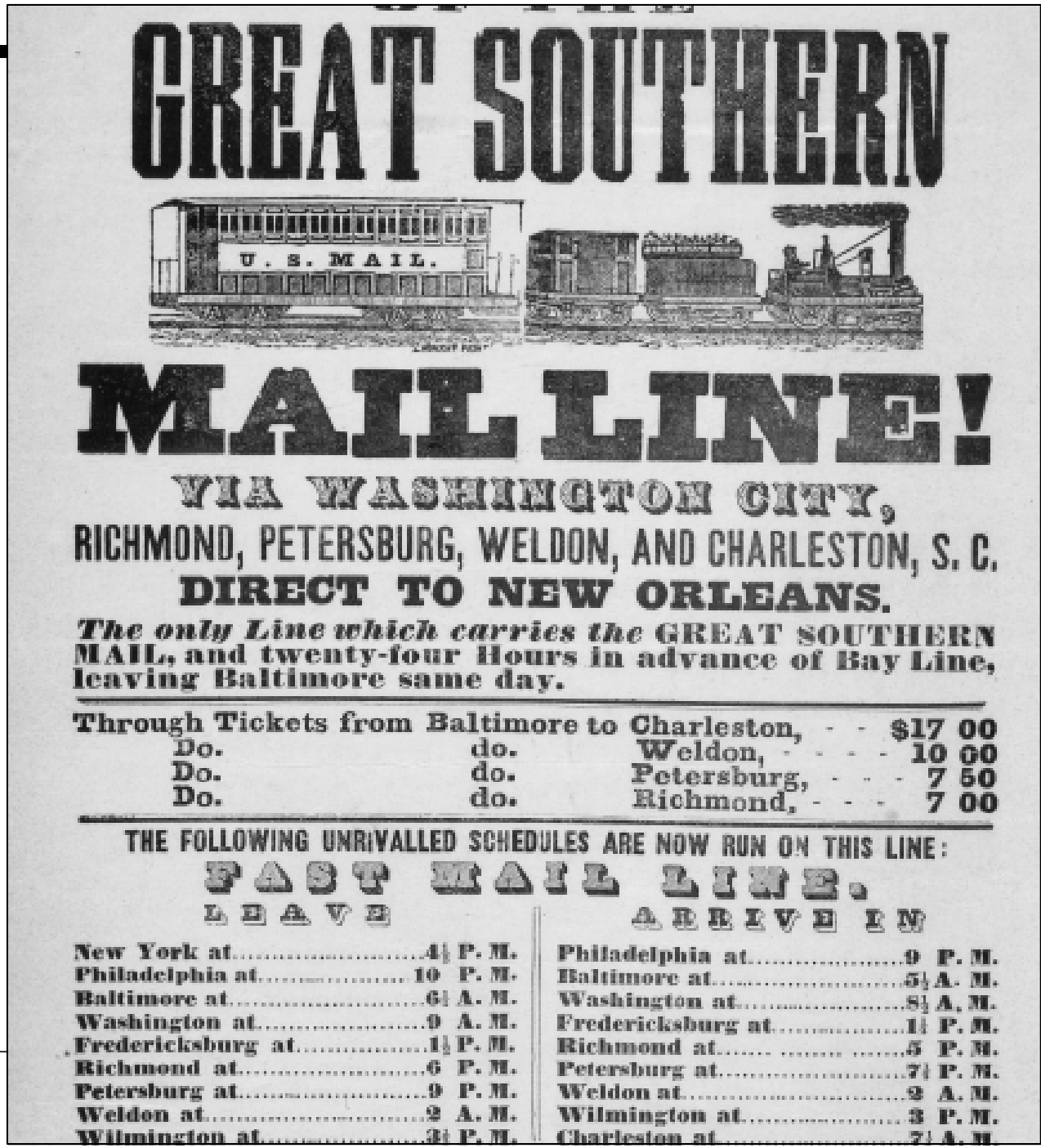
What is the rate of mail delivery?

What is the rate of mail delivery?



GREAT SOUTHERN

U. S. MAIL.

MAIL LINE!

VIA WASHINGTON CITY,

RICHMOND, PETERSBURG, WELDON, AND CHARLESTON, S. C.

DIRECT TO NEW ORLEANS.

***The only Line which carries the* GREAT SOUTHERN MAIL, and twenty-four Hours in advance of Bay Line, leaving Baltimore same day.**

Through Tickets from	Baltimore to	Charleston,	$17 00
Do.	do.	Weldon,	10 00
Do.	do.	Petersburg,	7 50
Do.	do.	Richmond,	7 00

THE FOLLOWING UNRIVALLED SCHEDULES ARE NOW RUN ON THIS LINE:

FAST MAIL LINE.

LEAVE		ARRIVE IN	
New York at	4½ P. M.	Philadelphia at	9 P. M.
Philadelphia at	10 P. M.	Baltimore at	5½ A. M.
Baltimore at	6¼ A. M.	Washington at	8½ A. M.
Washington at	9 A. M.	Fredericksburg at	1¼ P. M.
Fredericksburg at	1½ P. M.	Richmond at	5 P. M.
Richmond at	6 P. M.	Petersburg at	7¼ P. M.
Petersburg at	9 P. M.	Weldon at	2 A. M.
Weldon at	2 A. M.	Wilmington at	3 P. M.
Wilmington at	3¼ P. M.	Charleston at	7¼ A. M.

The great southern mail line!
July, 1847

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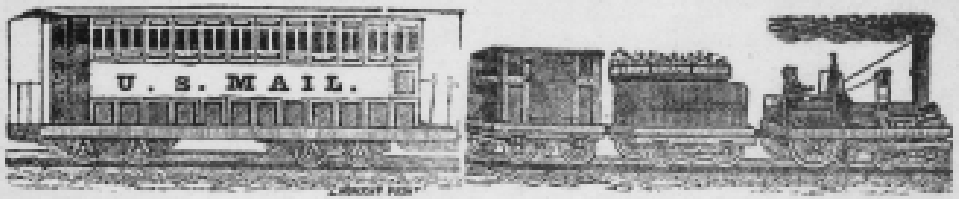
What is the rate of mail delivery?

What insights can a comparison provide?

The great southern mail line!
July, 1847

GREAT SOUTHERN



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Richmond at	6 P. M.	Petersburg at	7¼ P. M.
Petersburg at	9 P. M.	Weldon at	2 A. M.
Weldon at	2 A. M.	Wilmington at	3 P. M.
Wilmington at	3¼ P. M.	Charleston at	7¼ A. M.

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Measurement, Geometry, and Algebra

The Evolving Postal System

How long does it take to send a package from D. C. to Horse Head, MD?

American Atlas showing post offices, post roads, rail roads, canal and physical & political divisions

Measurement

History of Measurement

Famous Americans

What do you notice?

MEASURES OF CAPACITY *continued.*

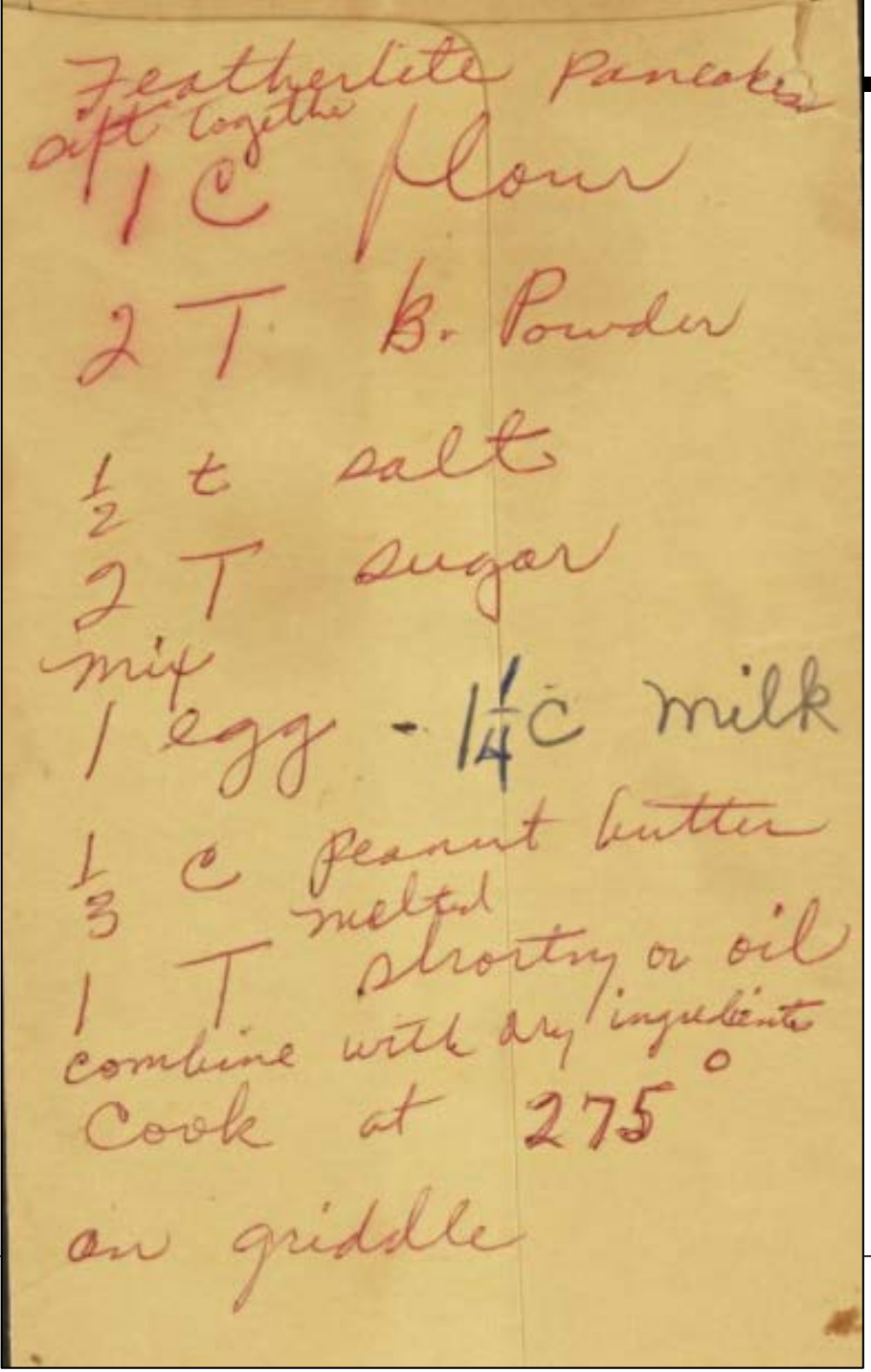
Quarter	10.	9.375 about $\frac{1}{5}$ less than the English quarter.
Last	100.	93.753 about $\frac{1}{7}$ more than the English last.

4. WEIGHTS.

	Pounds.	Avoirdupois.	Troy.
The *Mite*	.00001	-	.041 grains about $\frac{2}{5}$ less than the English mite.
Minim or *Demigrain*	.0001	-	.4101 about $\frac{1}{5}$ less than the half grain Troy.
Carat	.001	-	4.101 about $\frac{1}{40}$ more than the carat Troy.
Double Scruple	.01	-	41.017 about $\frac{1}{40}$ more than 2 scruples Troy.
Ounce	.1	.93753186841488 4352 oz.	410.170192431 .85452 oz. about $\frac{1}{10}$ less than the ounce Avoirdupois.
Pound	1.	9.375 .585957417759 lb.	.712101 lb. about $\frac{1}{4}$ less than the pound Troy.
Stone	10.	93.753 oz. 5.8595 lb.	7.121 about $\frac{1}{4}$ less than the English stone of 8 lb. Avoirdupois.
Kental	100.	937.531 oz. 58.5957 lb.	71.21 about $\frac{4}{10}$ less than the English kental of 100 lb. Avoirdupois.
Hogshead	1000.	9375.318 oz. 585.9574 lb.	712.101

[49]

Thomas Jefferson Proposal for National Measurement System; January 10, 1791.


Featherlite Pancakes
sift together
1 C flour
2 T B. Powder
½ t salt
2 T sugar
mix
1 egg - 1¼ C milk
⅓ C peanut butter
melted
1 T shortening or oil
combine with dry ingredients
Cook at 275°
on griddle

What can students learn from Rosa Parks' pancake recipe?

Rosa Parks' Recipe for featherlite pancakes

Numbers and Operations & Data Analysis:

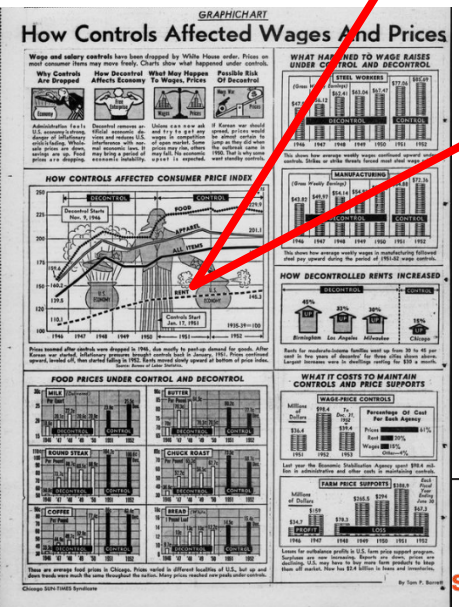
The Price of Bananas and Other Goods

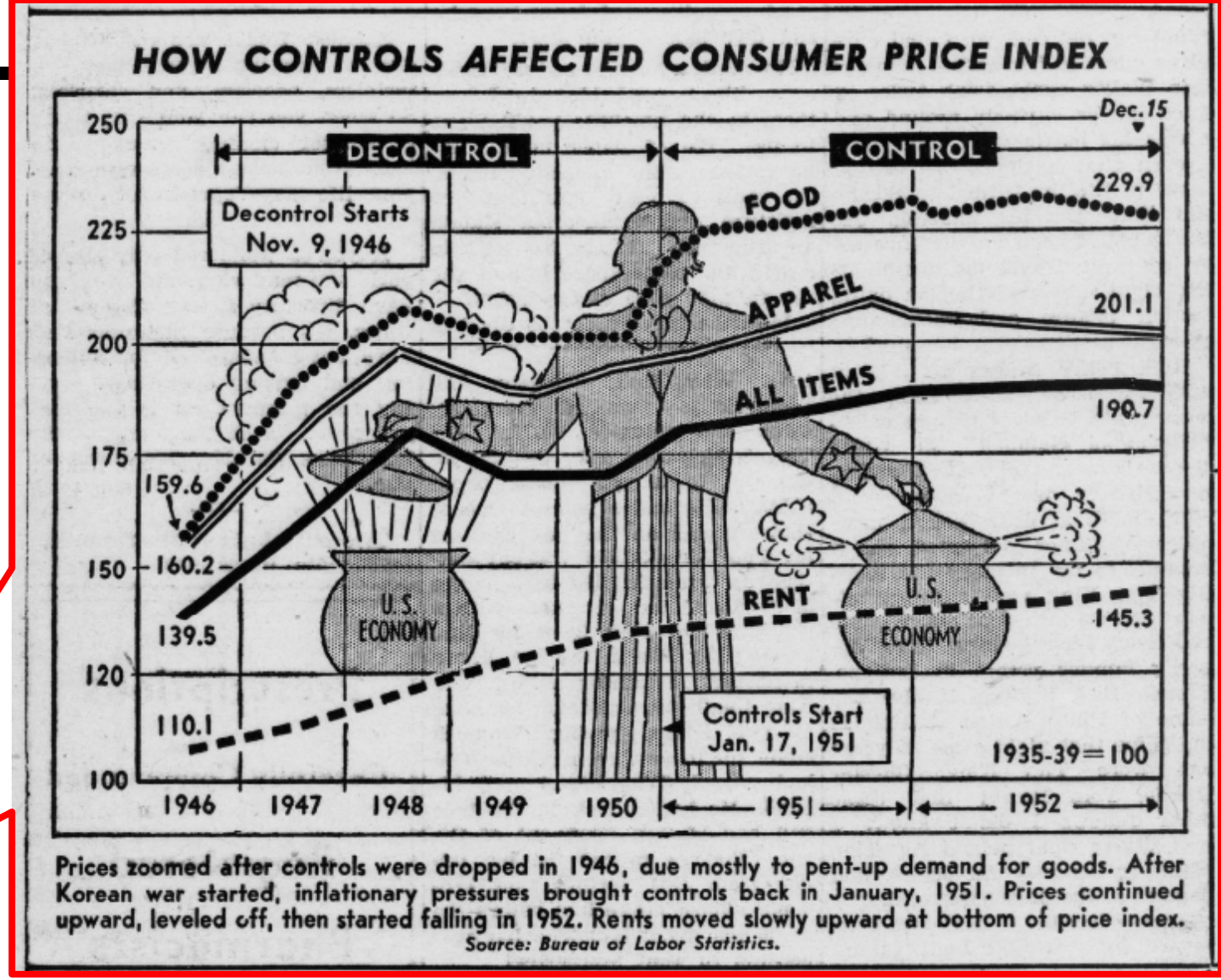
The Chapel Hill weekly, June 15, 1961

How could we figure out how much the price of bananas rose?

Roanoke Rapids herald. April 11, 1935

And how does this connect with larger concepts?



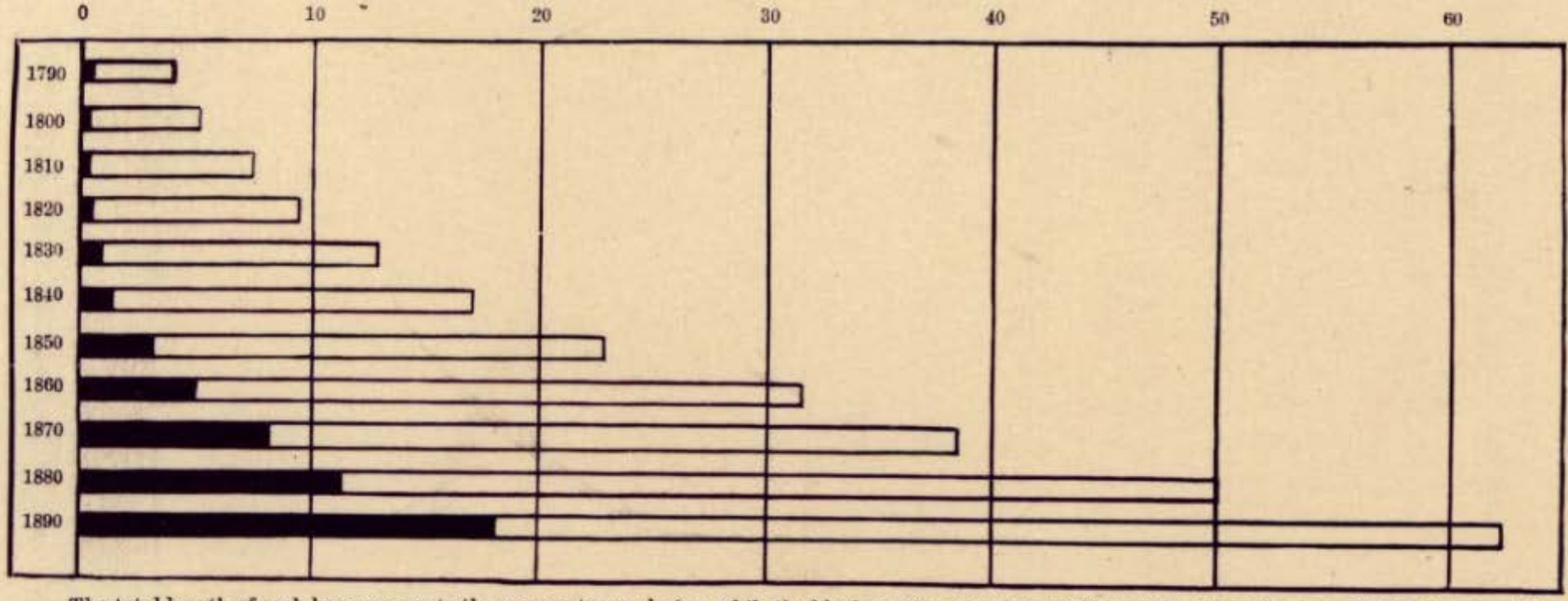


Arizona sun. [volume], March 06, 1953

Data Analysis

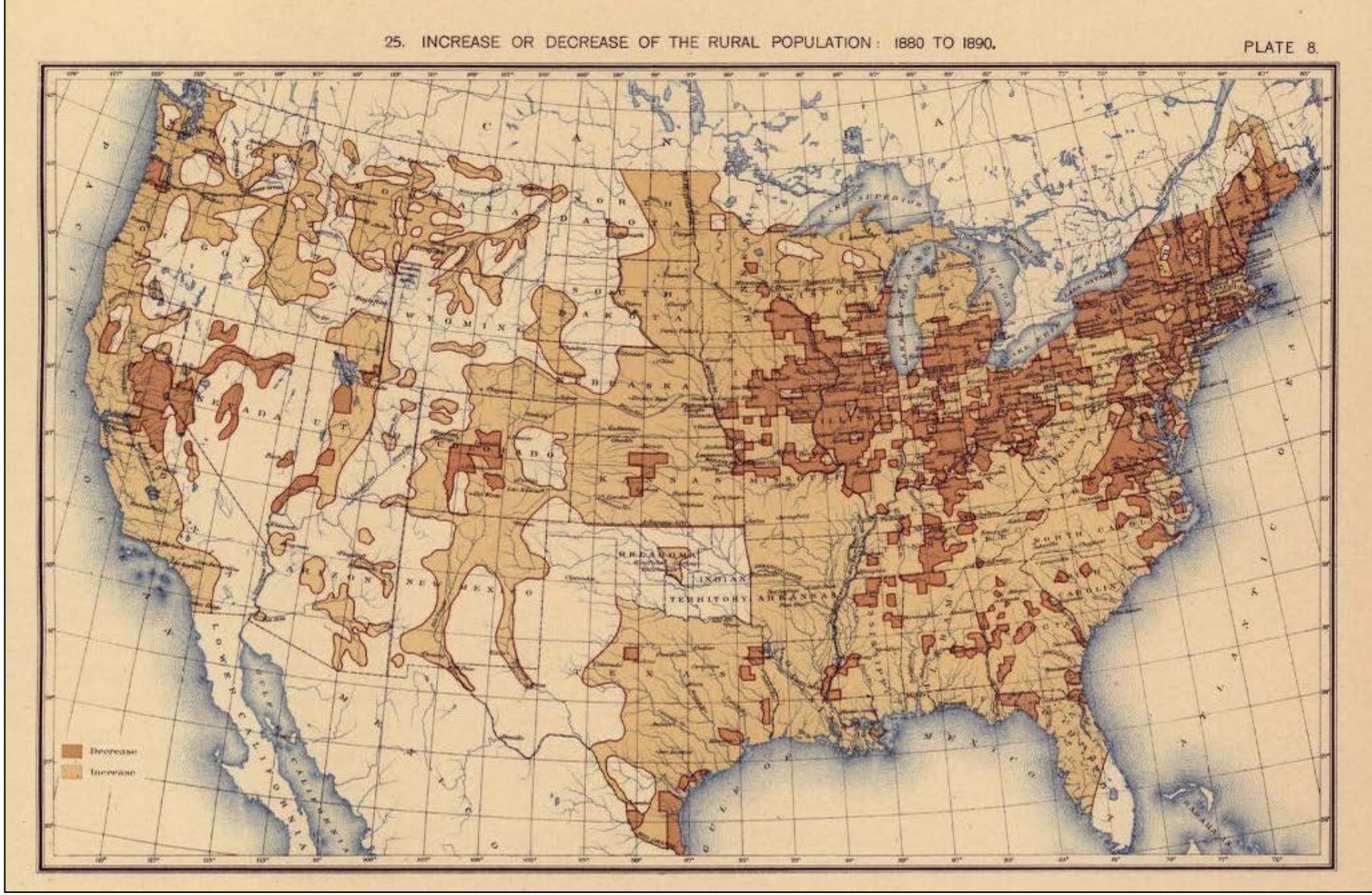
Statistical Atlases

What does the data tell us about America in the late 19th century?

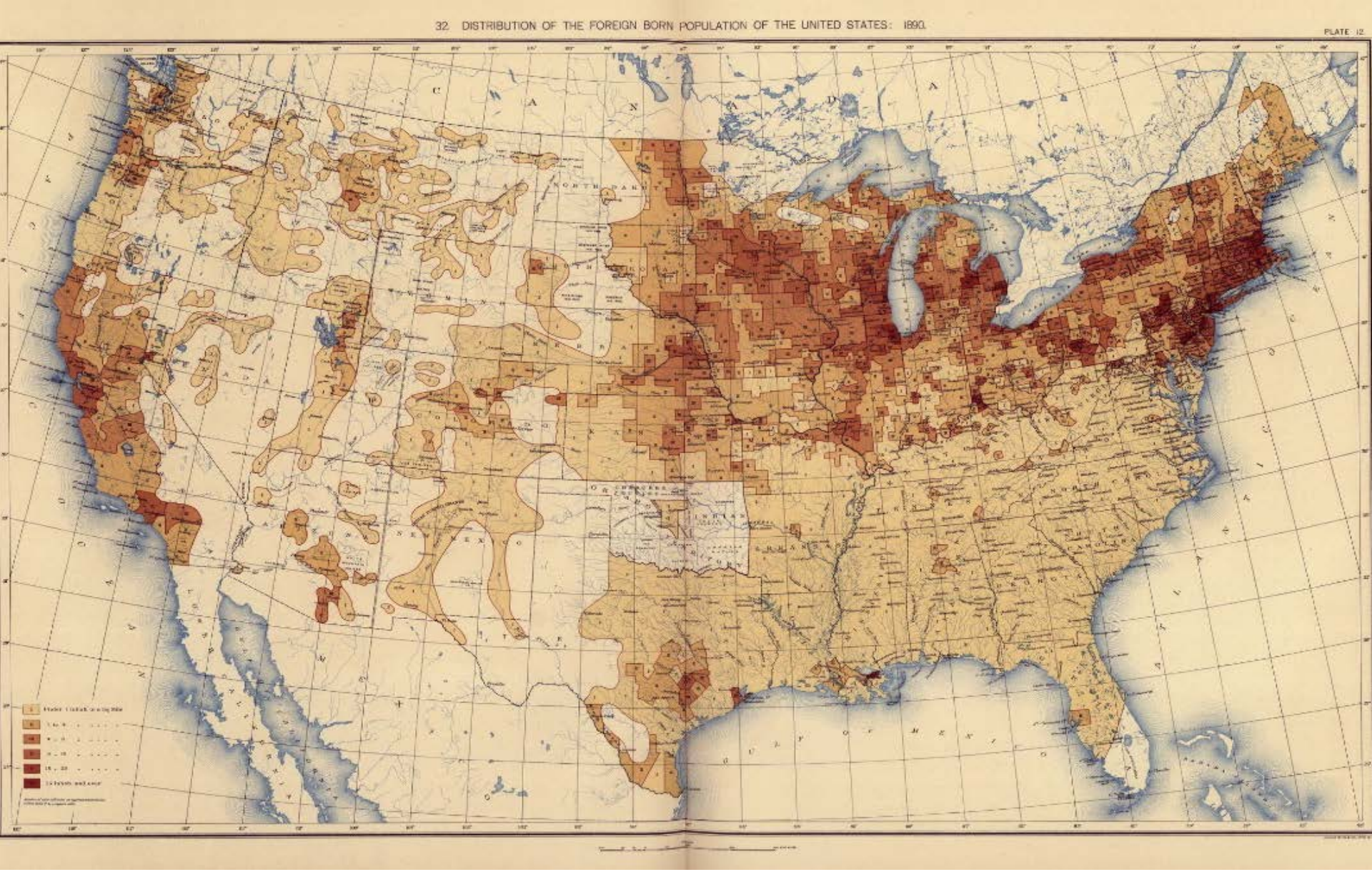


The total length of each bar represents the aggregate population, while the black portion of each bar indicates the urban element—that is, the population contained in cities having 8,000 inhabitants or more.

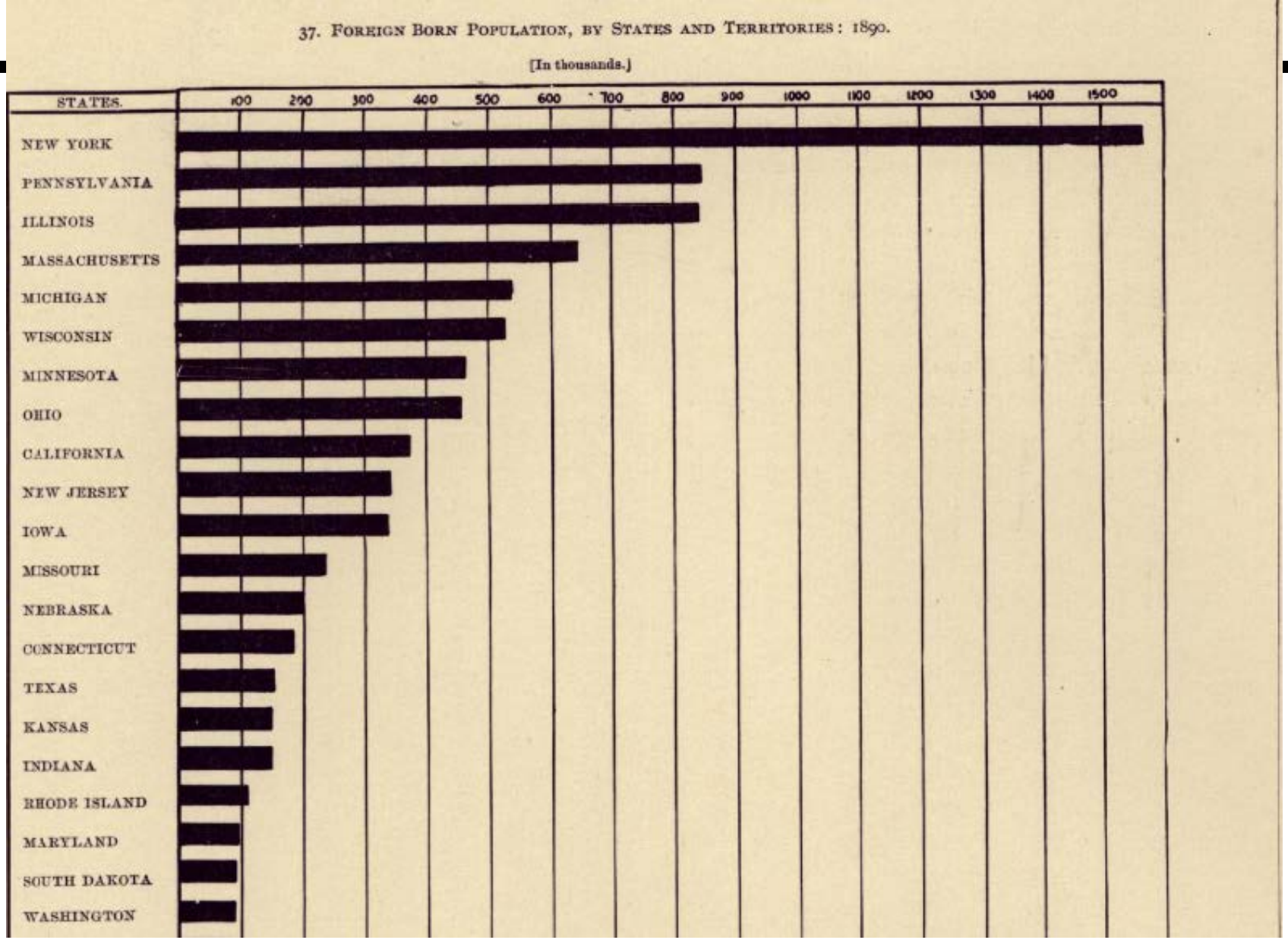
1. Urban and Total Population at Each Census (1790-1890)



25. Increase or decrease of the rural population: 1880 to 1890



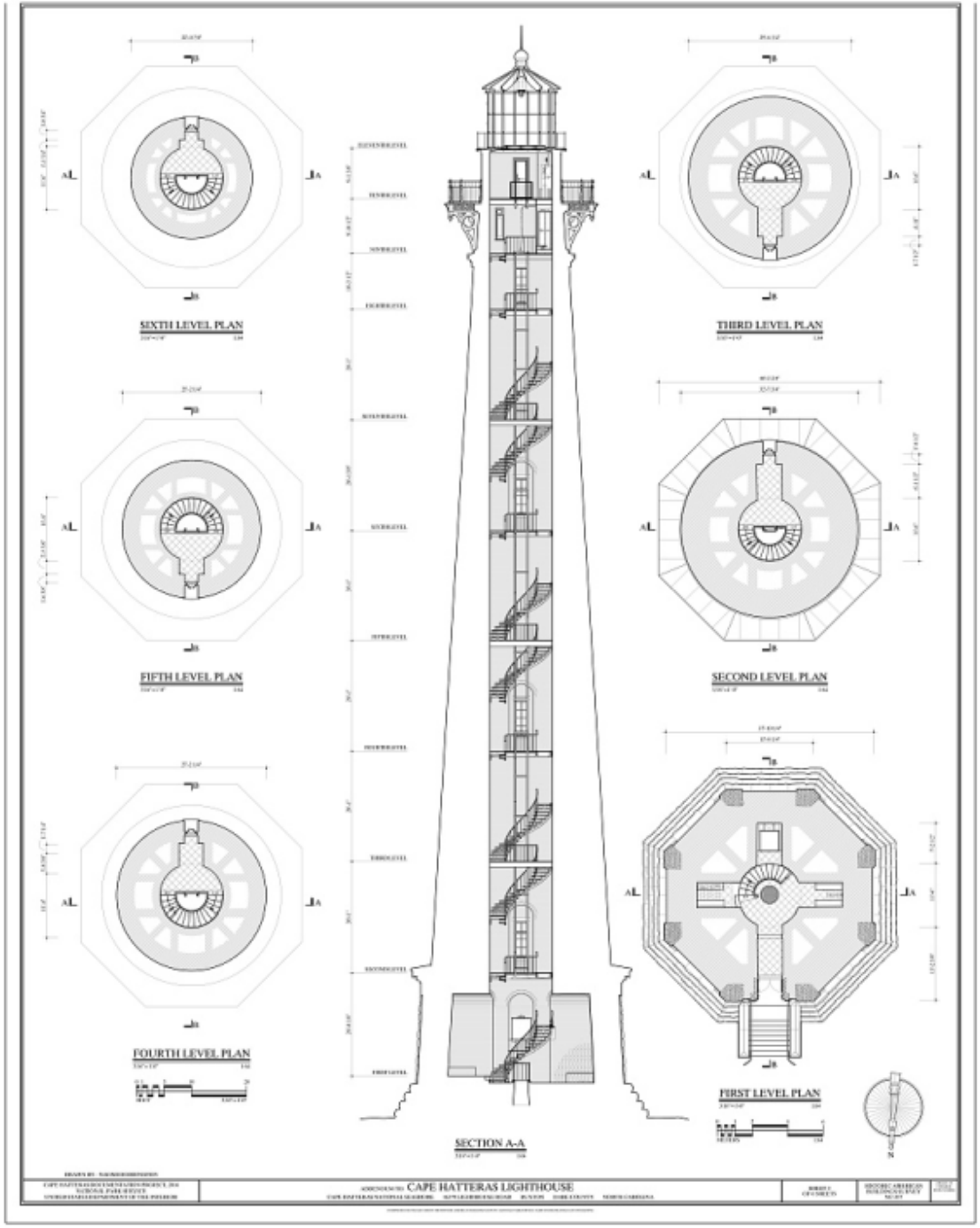
32. Distribution of the foreign born population of the United States: 1890



37. Distribution of the foreign born population of the United States: 1890

Geometry and Engineering

Historic American Structures



What shapes were used to build this lighthouse? Why?

Cape Hatteras Lighthouse

Historic American Buildings Survey
Historic American Engineering Record
Historic American Landscapes Survey

Computational Thinking

Historic Codes and Ciphers

B

behalf 62
bitter 63
bottom 64
bounty 65
bondage 66
borrow 67
bregade 68
business 69
battery 70
battalion 71
british 72

D

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do 123
die 124
damage 125
doctor 126
duty 127
drummer 128
daily 129
dispatch 130
distant 131
danger 132

E

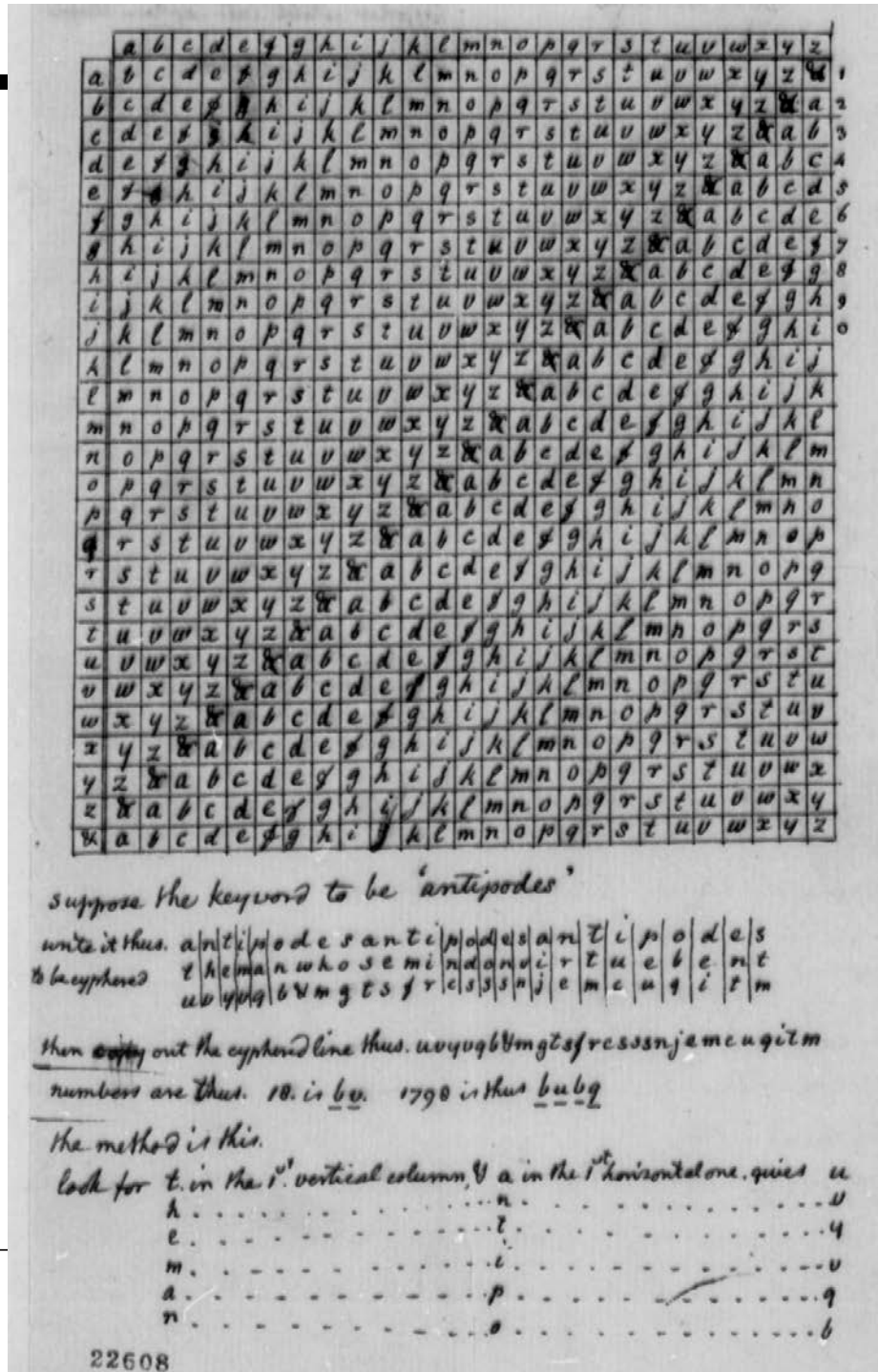
embark 175
employ 176
explore 177
enemy 178
example 179
embassador 180
engagement 181
experience 182
evacuate 183

F

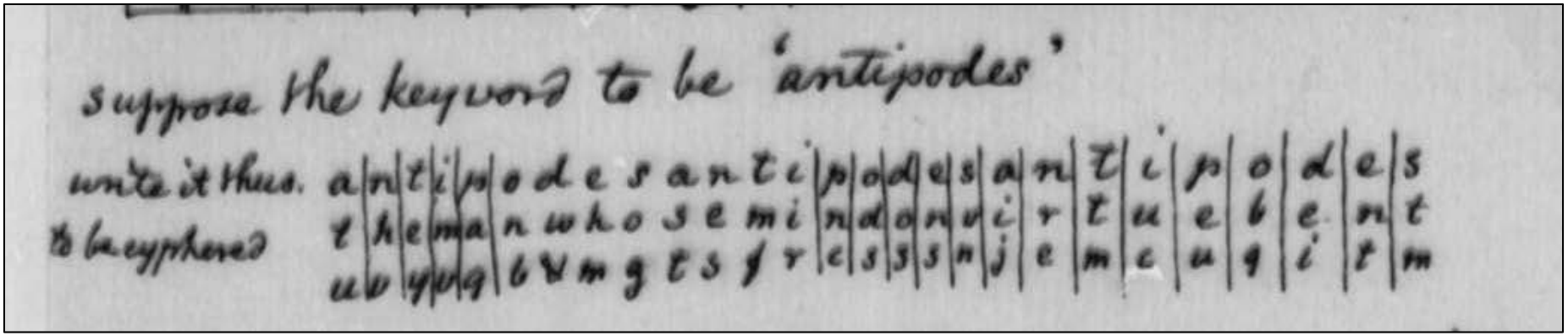
Culper Code, George Washington Papers, 1783

How was Washington's code structured?

How was Jefferson's cipher structured?



Thomas Jefferson to Meriwether Lewis, April 20, 1803, Cipher



How was Jefferson's cipher structured?

Where you can find more…

- Teaching with Library of Congress Blog
  (search by “mathematics” or choose “Science, Technology, and Mathematics” category)

- Scientific Data: Observing, Recording, and Communicating Information Primary Source Set

- HABS/HAER/HALS Collection

- U.S. Statistical Atlases

- Chronicling America (good for economics)

- Maps, Manuscripts, Photographs,etc. –
  (keep your eyes open; look for mathematics everywhere!)

If you have ideas …

mapf@loc.gov

…please contact me.