

Postcards from the Past: George Washington and Mathematics

See how one of America's most notable founding fathers rose to prominence thanks to his study and understanding of mathematics and surveying, a career which would one day elevate him to the American presidency.



MILNER LIBRARY
Illinois State University®

LIBRARY
OF CONGRESS
TEACHING
WITH **PRIMARY**
SOURCES
Consortium Member

Items in this collection:

A 66 foot long Gunter's Chain used for 18th century metes and bounds surveying in the colonies. Gunter, Edmund. [Gunter's Chain], Library of Congress, Geography and Map Division. G9900 18- Vault

Miller & Co. Map of the Howland Place, Whitestone Avenue, Flushing, L.I. [N.Y. i.e. New York: Miller's Lith., ?, 1845] Map. Retrieved from the Library of Congress, <www.loc.gov/item/2004625799/>.

Stearns, Junius Brutus, Artist. Life of George Washington--The farmer / painted by Stearns ; lith. by Régnier, imp. Lemercier, Paris. Paris: Lemercier. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/96521631/>.

Washington, George. George Washington Papers, Series 1, Exercise Books, Diaries, and Surveys -99, Subseries 1A, Exercise Books -1747: School Copy Book, Volume 1. 1745. Manuscript/Mixed Material. Retrieved from the Library of Congress, <www.loc.gov/item/mgw1a.002/>.

Lectures 1745
George Washington

Geometry

One of the three Sciences, and a very useful and necessary Branch of the Mathematicks whose object is
greater: Or as Numbers is the Subject of Arithmetick so
that of Geometry is Magnitude which hath its beginning the
Point that is a thing imperfect to be indissoluble and the
beginning of all Demonstrations By it is explained the Nature
and Property of continued Magnitude that is a Line as
superficies and a solid of which all their proper Orders

Geometrical Definitions

1 A Point is said of Length Breadth and Depth as it is
a

2 A Line is made by the moving of a Point and
has length only do it is which in the first kind

3 of Magnitude

4 All superficies is made by the moving of a Line and
has length and breadth as A B C D which is the
second kind of



Geographical Definitions

12. A Gulf is a great inlet of the land deeper than a Bay such as the Gulf of Venice & the Straits
13. A Climate is a certain space of Earth & the that is also divided with the space of two Circles & so from the Equator down to the North & South Pole
14. A Zone is a certain space of Earth & the contained between two Circles of the sphere and are five Zones
- The Earth is divided into five Zones
- The North or burning Zone, the Temperate, the Equatorial Zone, the Torrid Zone, that which is on each side of the Equator & the South
- The two Temperate Zones are contained between each Tropick
- The two Tropicks of Cancer & Capricorn
- The two Equatorial Zones are contained within each Polar Circle
- These two Equatorial Zones, are contained within each Polar Circle

The Globe of the Earth is divided into four Parts

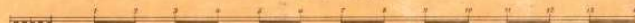
Europe	Asia
Africa	America

Europe is bounded from the by the Mediterranean Sea, on the East with the Black Sea, on the North with the North Sea, on the West with the Atlantic Ocean

Germany	Spain	Scandinavia	Hungary
Italy	Denmark	Poland	Silesia
France	Norway	Sweden	Greece

Great Britain	Switzerland	Italy	Spain
Ireland	Germany	France	Portugal

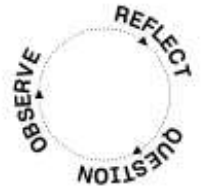
L.I.



Division of Maps
MAR - 5 1934

PRIMARY SOURCE ANALYSIS TOOL

NAME:



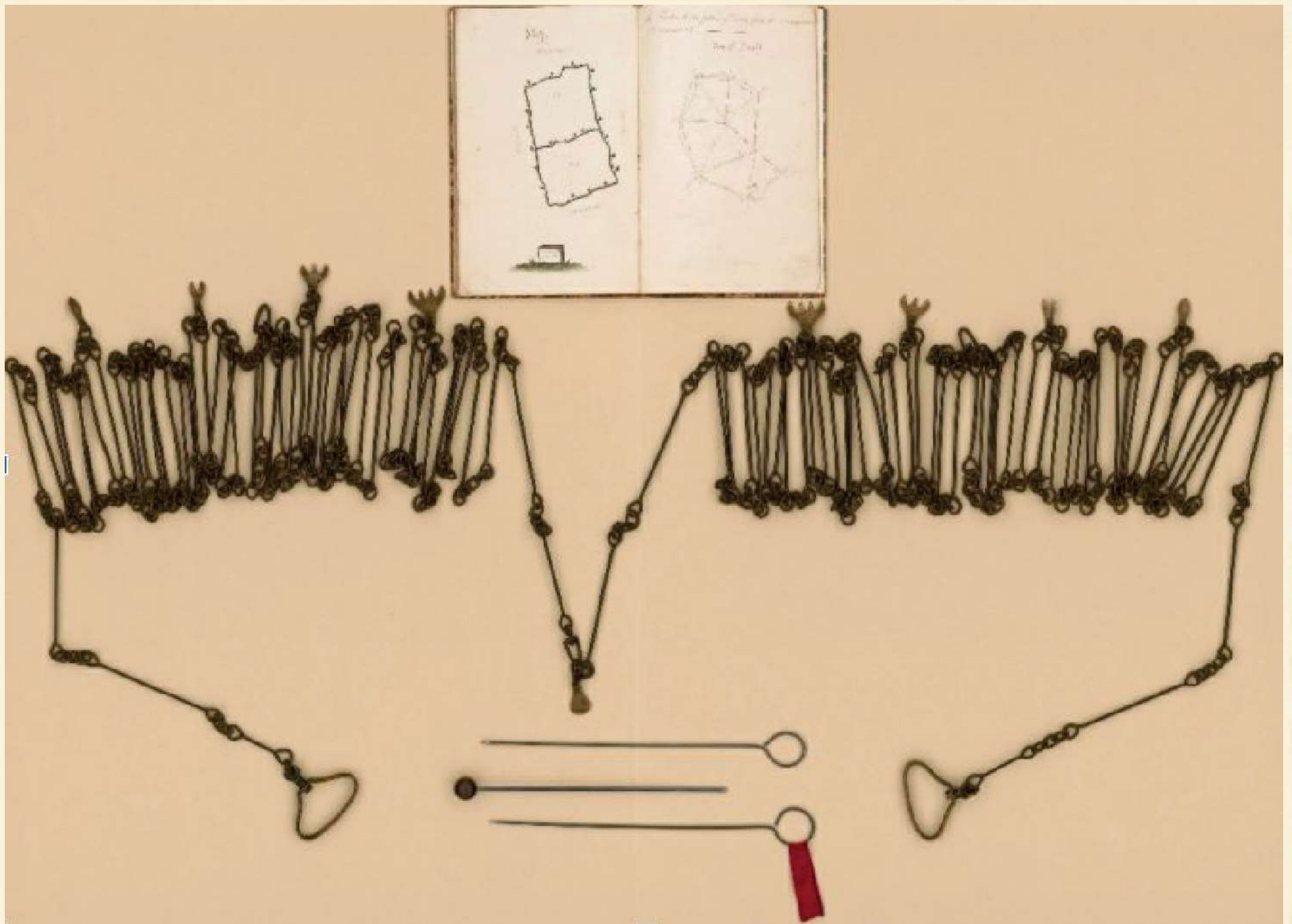
OBSERVE

REFLECT

QUESTION

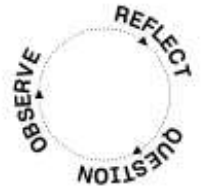
FURTHER INVESTIGATION:

ADDITIONAL NOTES:



PRIMARY SOURCE ANALYSIS TOOL

NAME:



OBSERVE

REFLECT

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:



Painted by C. L. V. 1796

LIFE OF GEORGE WASHINGTON
THE FARMER

Engraved by J. B. Kneller, 1796

George Washington, the great general, in which he was placed at the head of the army, was here seen in the field, in the country, and with the people in the house.

Postcards from the Past: Women's Suffrage and Statistics

Applying concepts of mathematics and history, this primary source set seeks to provide analysis of the journey that women underwent to gain the right to vote in the United States.



MILNER LIBRARY
*Illinois State University**

LIBRARY
OF CONGRESS
TEACHING
WITH **PRIMARY**
SOURCES
Consortium Member

Items in this collection:

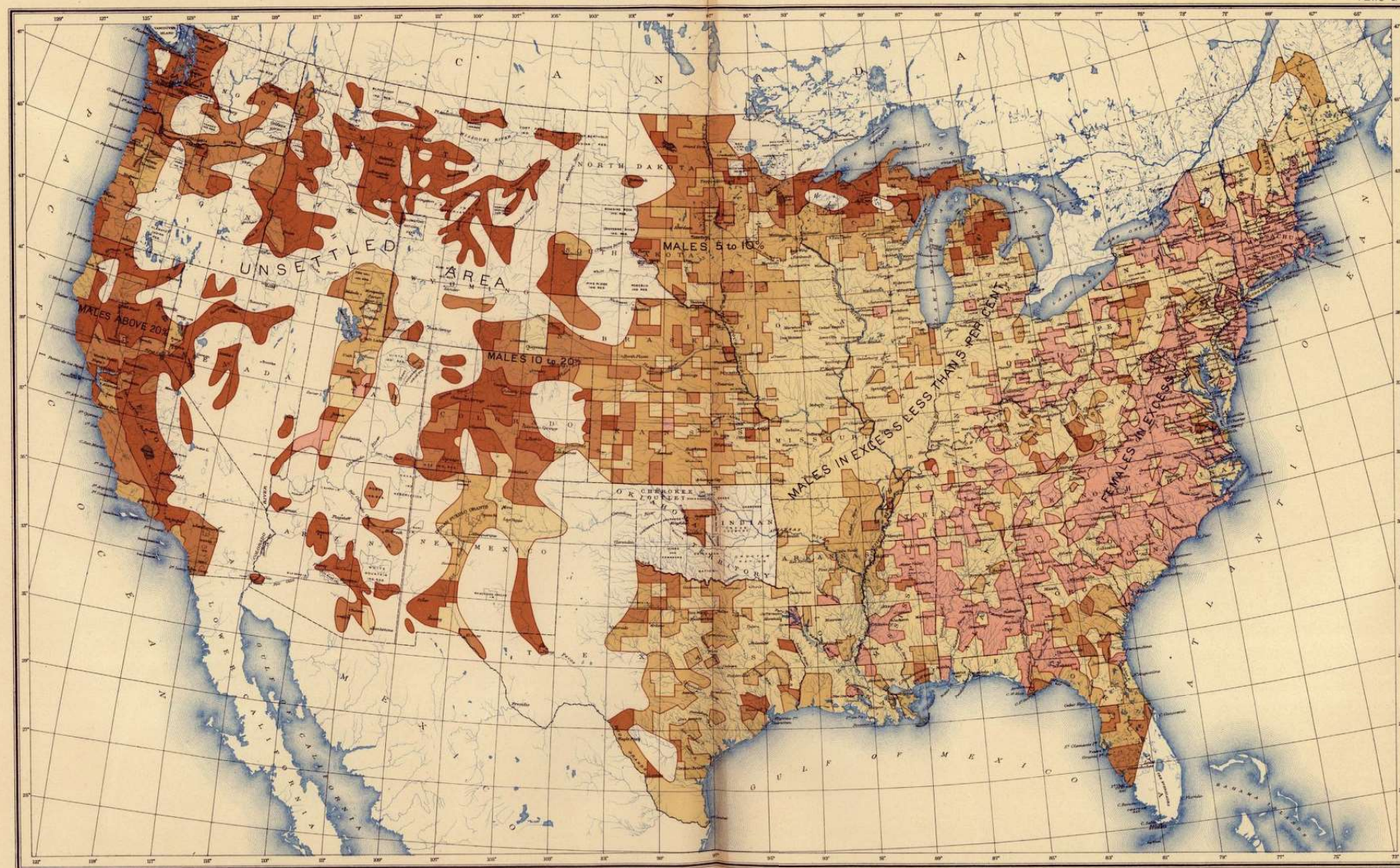
Blackwell Family. Blackwell Family Papers: Alice Stone Blackwell Papers, -1957; Miscellany.; Scrapbooks; 3 of 8. - 1957, 1848. Manuscript/Mixed Material. Retrieved from the Library of Congress, <www.loc.gov/item/mss1288000930/>.

Gustin, E. W., Artist. Election Day!. Jan 21. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/97500226/>

United States Census Office. 11Th Census, 1890, and Henry Gannett. Statistical atlas of the United States, based upon the results of the eleventh census. Washington, Govt. print. off, 1898. Map. Retrieved from the Library of Congress, <www.loc.gov/item/07019233/>.

Part of the Vast Billboard Campaign of the Woman's Party. Putting up billboard in Denver. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/mnwp000345/>.

Mayer, Henry, Artist. The awakening / Hy Mayer. New York: Published by Puck Publishing Corporation, 295-309 Lafayette Street. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/98502844/>.



JAN 21 1909

VOTES
FOR
WOMEN



COPYRIGHT 1909 E.W. GUSTIN



Election Day!

NEW YORK
JAN 21 1909
E.W. GUSTIN
100 N. 3RD ST.
NEW YORK

QUESTION

FURTHER INVESTIGATION:

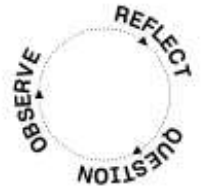
ADDITIONAL NOTES:

(14)	Census 1910		Election 1916	
	adult males	votes cast	per cent	
Maine	235.727	136.405	57+	
New Hampshire	136.668	89.127	64+	
Vermont	113.506	64.475	56+	
Mass.	1.021.669	531.817	52+	
Rhode Island	163.834	87.816	53+	
Connecticut	347.692	213.874	61+	
New York	2.836.773	1.706.305	60+	
New Jersey	774.702	494.442	63+	
Penn.	2.309.026	1.297.097	56+	
Ohio	1.484.265	1.165.391	79+	
Indiana	822.434	718.848	87+	
Michigan	870.876	647.071	74+	
Wisconsin	683.743	449.377	65+	
Minnesota	642.669	387.378	60+	
Iowa	663.672	517.716	78	
Missouri	973.062	785.571	81+	
N. Dakota	173.890	115.390	66+	
S. Dakota	178.189	128.964	72+	
Nebraska	353.626	286.836	81+	
Delaware	61.887	51.810	83	
Maryland	367.908	262.039	71+	
Virginia	523.532	153.994	29+	
W. Virginia	338.349	289.677	85+	
N. Carolina	506.134	289.814	57+	
S. Carolina	335.046	63.952	19+	
Georgia	620.616	160.690	26-	
Florida	214.195	80.803	37+	

(15)	Census 1910		Election 1916	
	adult males	votes cast	per cent	
Kentucky	603.454	520.069	86+	
Tennessee	552.668	271.901	49+	
Alabama	513.111	129.216	25-	
Mississippi	426.953	86.679	20+	
Arkansas	395.824	168.430	42+	
Louisiana	414.919	92.982	22+	
Oklahoma	447.266	292.356	65-	
Texas	1.003.357	371.721	37-	
New Mexico	94.637	66.967	70+	
22.205.879		13.177.980	59+	
(15)	Census 1910		Election 1916	
	adult men + women	votes cast	per cent	
Wyoming	92.041	51.842	56+	
Colorado	485.070	294.375	60+	
Idaho	180.681	134.615	74+	
Utah	189.844	143.042	75+	
Washington	719.021	379.459	53-	
California	920.397	671.386	63-	
Oregon	425.511	261.650	61+	
Kansas	947.463	629.813	66+	
Arizona	117.942	58.021	52-	
Nevada	58.166	32.978	56+	
Montana	236.748	177.679	75+	
Illinois	3.310.673	2.189.347	66+	
Total	7.683.560	5.024.189	65+	

PRIMARY SOURCE ANALYSIS TOOL

NAME:



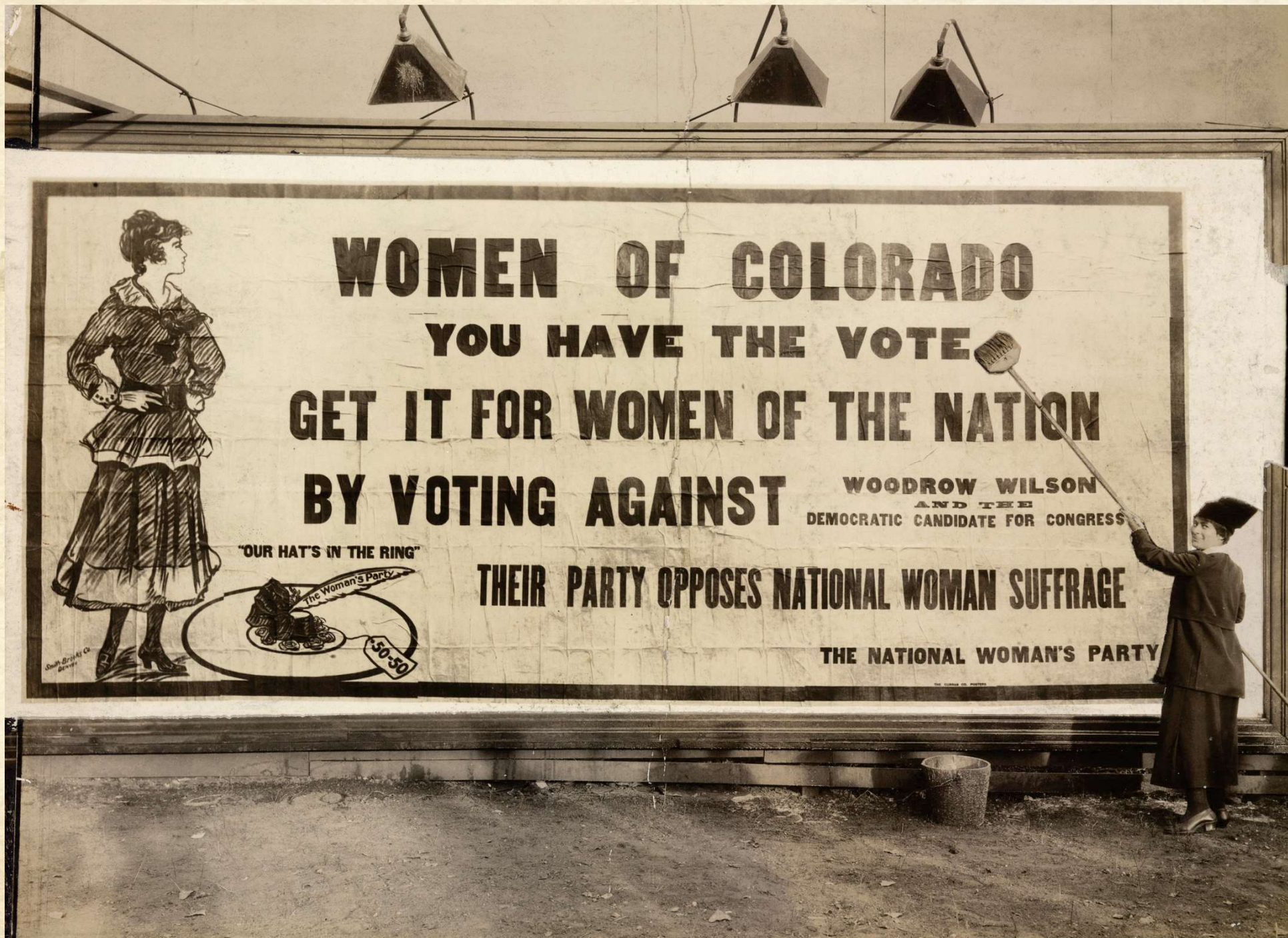
OBSERVE

REFLECT

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:



WOMEN OF COLORADO

YOU HAVE THE VOTE

GET IT FOR WOMEN OF THE NATION

BY VOTING AGAINST

**WOODROW WILSON
AND THE
DEMOCRATIC CANDIDATE FOR CONGRESS**

THEIR PARTY OPPOSES NATIONAL WOMAN SUFFRAGE

THE NATIONAL WOMAN'S PARTY

"OUR HAT'S IN THE RING"

The Woman's Party

50-50

Smith-Bright Co.
Denver



BY H. MAYER

Look forward, women, always; utterly cast away
The memory of hate and struggle and bitterness;
Swords may endure for a while, but freedom comes with the day,
And the free must remember nothing less.

Forget the strife; remember those who strove—
The first defeated women, gallant and few,
Who gave us hope, as a mother gives us love,
Forget them not, and this remember, too:

How at the later call to come forth and unite,
Women undaunted, unoppressed, alone and apart,
Rang upon ranks came forth in organized might,
Each one answering the call of her own wise heart.

They came from tall and vast, from leisure and ease,
Those who knew only life, and learned women of leisure,
Girls and the mothers of girls, and the mothers of these,
No one knew whence or how, but they came, they came.

The faces of some were stern, and some were gay,
And some were pale with the terror of unreal dangers;
But their hearts knew this: that hereafter come what may,
Women to women would never again be strangers.

Alice Dear Miller

Postcards from the Past:

Census Across the 1800s

To highlight the use of mathematics in understanding American culture and history, this primary source set pulls a collection of select pages from the *The total population and its elements at each census: 1790 to 1890*.



MILNER LIBRARY
*Illinois State University**

LIBRARY
OF CONGRESS
TEACHING
WITH **PRIMARY**
SOURCES
Consortium Member

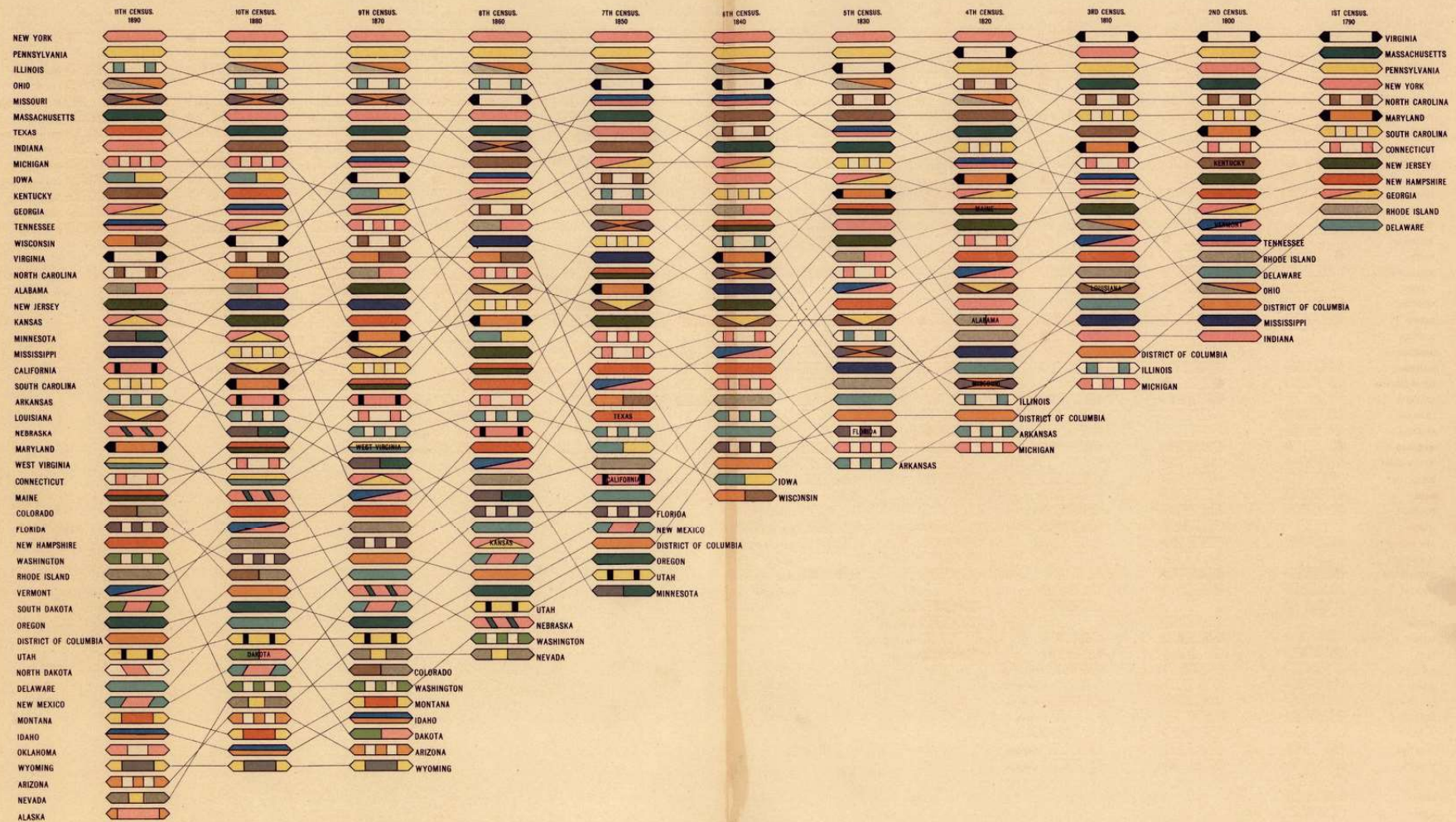
Items in this collection:

Crofutt, George A. American Progress. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/97507547/>.

Section of Vital Statistics Census. [Between 1909 and 1940] Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/2016823356/>.

9. RANK OF STATES AND TERRITORIES IN POPULATION AT EACH CENSUS: 1790—1890.

PLATE 2



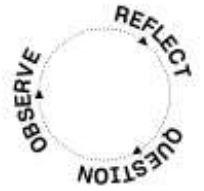
33. PROPORTION OF THE FOREIGN-BORN TO THE AGGREGATE POPULATION: 1890.

PLATE 13



PRIMARY SOURCE ANALYSIS TOOL

NAME:



OBSERVE

REFLECT

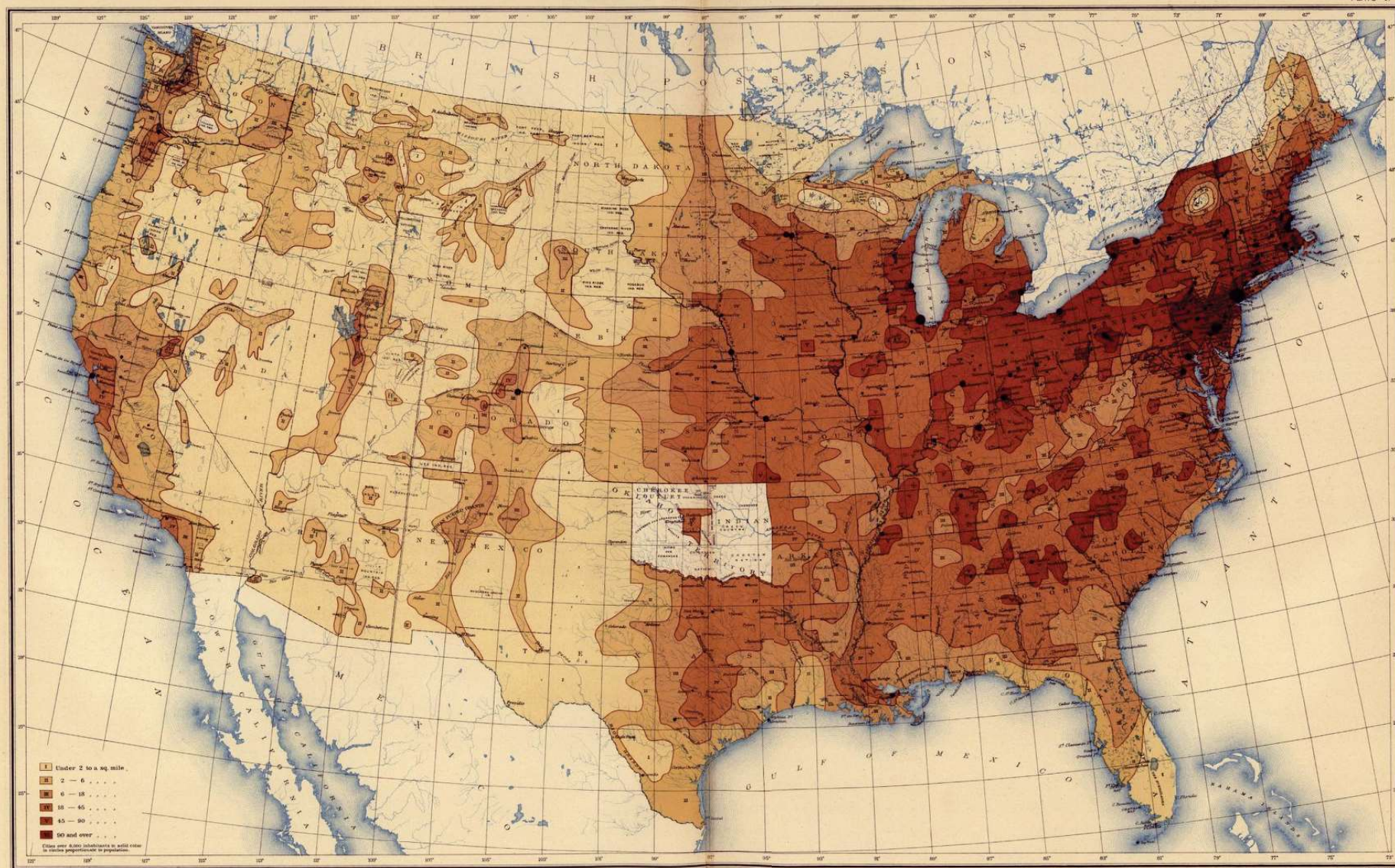
QUESTION

FURTHER INVESTIGATION:

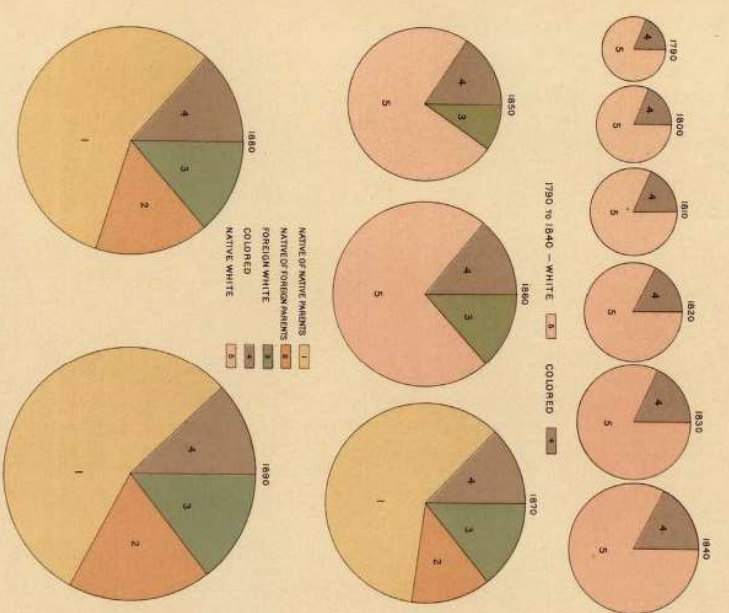
ADDITIONAL NOTES:

20. DISTRIBUTION OF THE POPULATION OF THE UNITED STATES: 1890.

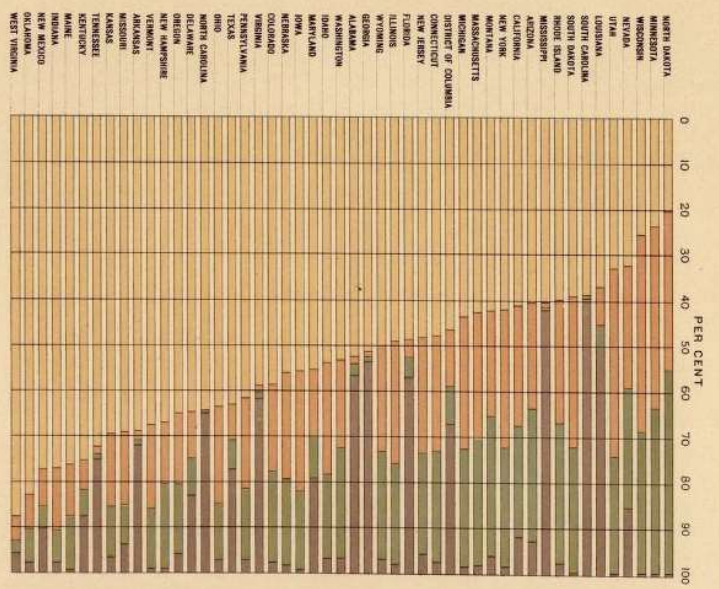
PLATE 6.



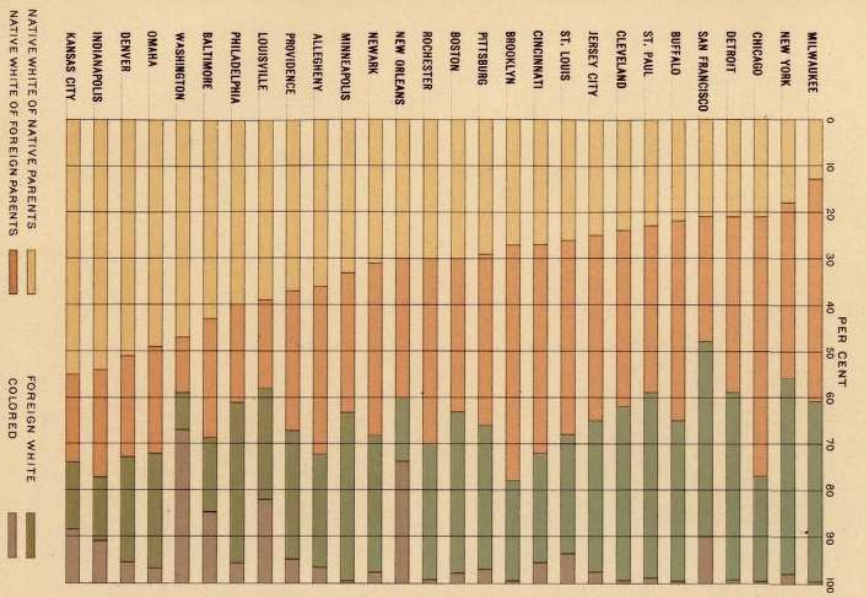
34. THE TOTAL POPULATION AND ITS ELEMENTS AT EACH CENSUS : 1790 to 1890.



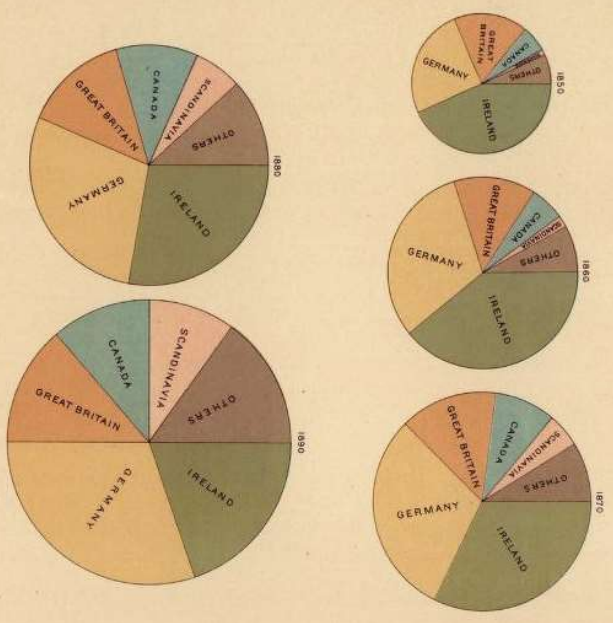
35. CONSTITUENTS OF THE POPULATION OF THE STATES AND TERRITORIES : 1890.



36. CONSTITUENTS OF THE POPULATION OF THE GREAT CITIES : 1890.



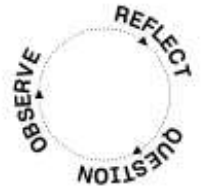
39. NATIONALITIES OF THE FOREIGN BORN AT EACH CENSUS : 1850 to 1890.



PRIMARY SOURCE ANALYSIS TOOL

NAME:

--



OBSERVE

REFLECT

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:



A very small section of the Census Bureau Washington D.C. 3369
division of vital statistics.

134542

Postcards from the Past: Into the American West

This primary source set collection takes five images from a document created in 1848 which sought to document the cultural, topographical, scientific, and ecological aspects of the American west. Documented by W. H. Emory in *Notes of a Military Reconnaissance*, this document provides a cross-curricular means of exploring their journey.



MILNER LIBRARY
*Illinois State University**

LIBRARY
OF CONGRESS
TEACHING
WITH **PRIMARY**
SOURCES
Consortium Member

Items in this collection:

United States Army. Corps Of Topographical Engineers, and William H Emory. Notes of a military reconnoissance, from Fort Leavenworth, in Missouri, to San Diego, in California, including parts of the Arkansas, Del Norte, and Gila rivers.

Washington, Wendell and Van Benthuisen, printers, 1848. Pdf. Retrieved from the Library of Congress, <www.loc.gov/item/rc01000181/>.

5-22-2
362
30th CONGRESS,
1st Session.

[SENATE.]

EXECUTIVE,
No. 7.

U. S. Engineers Dept.

NOTES OF A MILITARY RECONNOISSANCE,

FROM

FORT LEAVENWORTH, IN MISSOURI,



SAN DIEGO, IN CALIFORNIA,

INCLUDING PARTS OF THE

ARKANSAS, DEL NORTE, AND GILA RIVERS.

BY W. H. EMORY,

BREVET MAJOR, CORPS TOPOGRAPHICAL ENGINEERS.

MADE IN 1846-7, WITH THE ADVANCED GUARD OF THE "ARMY OF THE WEST."

WASHINGTON:

WENDELL AND VAN BENTHOYSEN, PRINTERS.

1848.

Copy 2

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:

NOTES.

August 2, 1846.—I looked in the direction of Bent's Fort, and saw a huge United States flag flowing to the breeze, and straining every fibre of an ash pole planted over the centre of a gate. The mystery was soon revealed by a column of dust to the east, advancing with about the velocity of a fast walking horse—it was "the Army of the West." I ordered my horses to be hitched up, and, as the column passed, took my place with the staff.

A little below the fort the river was forded without difficulty, being paved with well attritioned pebbles of the primitive rock, and not more than knee deep.

We advanced five miles along the river, where its bed slides over a black, carbonaceous shale, which has been mistaken for coal, and induced some persons to dig for it.

Here we turned to the left, and pursued our course over an arid, elevated plain, for twenty miles, without water. When we reached the Timpas, we found the water in puddles, and the grass bad.

Colonel Doniphan was ordered to pursue the Arkansas to near the mouth of the Timpas, and rejoin the army by following the bed of that stream.

Near where we left the Arkansas we found, on the side of the slope, several singular demi-spheroids, about the size of an umbrella, coated with carbonate of lime, in pyramidal crystals, which, at a distance, resembled the bubbles of a huge boiling caldron.

Along the Arkansas the principal growth consists of very coarse grass, and a few cotton-woods and willows. The plains were covered with very short grass, *Sesleria Dactyloides*, now burnt to cin-der, and *artemisia*.

The only animals seen were one black-tailed rabbit and an antelope; both of which were killed.

Our march was 26 miles, that of the army 37; the last 20 miles without water.

The artillery arrived in camp about 11, p. m.; both men and horses were parched with thirst. The teamsters, who had to encounter the dust, suffered very much. When water was near, they sprang from their seats and ran for it like mad men. Two horses sank under this day's march.

Our ascent was considerable to-day. The height, indicated by the barometer, being 4,523 feet above the level of the sea.

August 3.—We ascended the Timpassix and three-quarter miles,

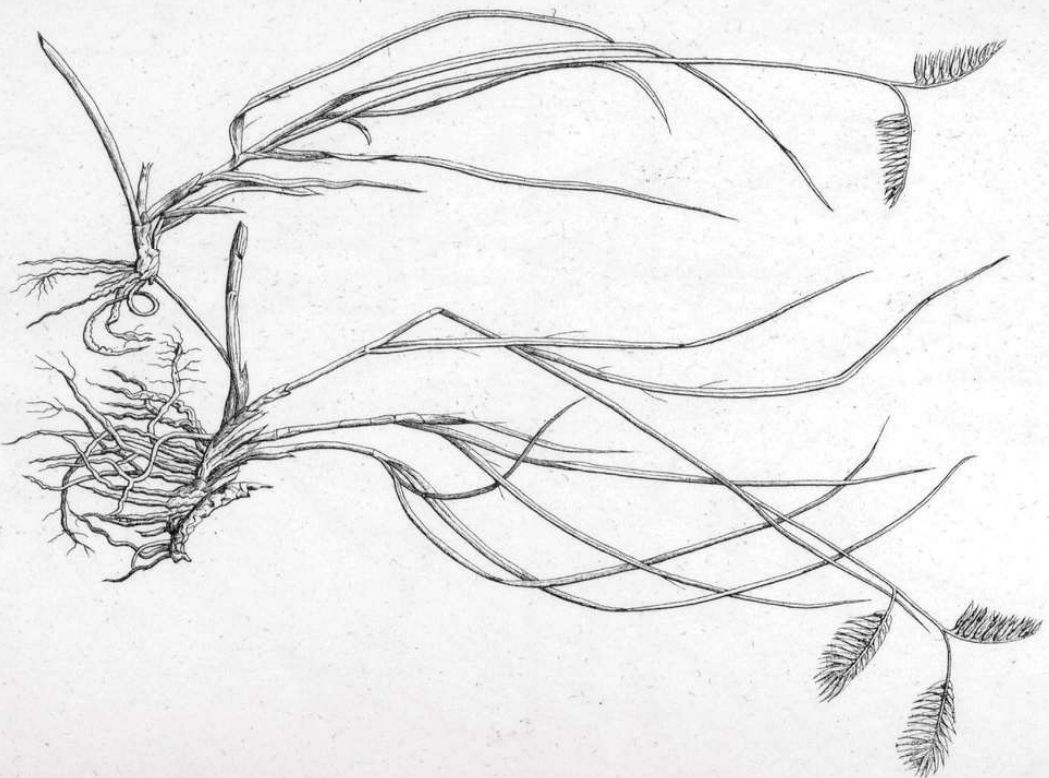
APPENDIX No. 3.—METEOROLOGICAL OBSERVATIONS—Continued.

Places of observation.	Date.	Time.	Barometer.	Thermometer.			Approximate altitude.	Remarks.
				Attached.	Free.	Wet bulb.		
Camp 22, on the Arkansas.....	July 22.....	7 a. m....	68.94	22½	74½	64	2940	
Camp 23, on the Arkansas.....	do.....	7 p. m....	68.67	30	86	66	2988	Clear; light breeze E. by N.
Do.....do.....	July 23.....	5 a. m....	68.79	19	67	65		Sky overcast in the west.
Camp 24, on the Arkansas.....	do.....	7 p. m....	68.10	26	81	70½	3268	Clear; light wind E. by S.
Do.....do.....	July 24.....	5.30 a. m.	68.28	19	68	63		Strong wind SE.; sky overcast to the west.
Camp 25, on the Arkansas.....	do.....	7 p. m....	67.94	29	83	74	3319	Clear; wind E. by S.
Do.....do.....	July 25.....	4.45 a. m.	67.95	21½	72	64½		Clear; light breeze SE.
Camp 26, on the Arkansas.....	do.....	7 p. m....	67.75	30	84	61	3396	Clear; wind light, SE.
Do.....do.....	July 26.....	5 a. m....	67.82	23	71½	62		Overcast in the west; wind south.
Camp 27, on the Arkansas.....	do.....	7 p. m....	67.29	29½	84½	68	3594	Wind E. by S.; darkly overcast in the east.
Do.....do.....	July 27.....	5 a. m....	67.26	21	70	64		Clear; wind E. by S.
Camp 28, on the Arkansas.....	do.....	7 p. m....	66.69	25	74½	65		After a severe hail storm, with thunder and lightning, dark clouds in the east; appearance of more rain; wind SE.
Do.....do.....	July 28.....	5 a. m....	66.80	20	66	62	3779	Clouds in west; no wind.
Camp 29, on the Arkansas.....	do.....	7 p. m....	66.51	29½	78	62	3862	Clear; no wind.
Do.....do.....	July 29.....	5 a. m....	66.60	16	58	54		Clear.
Camp 30, near Bent's fort.....	do.....	7 p. m....	66.51	25	76	62		Sky overcast in the NW.; strong wind NE.
Do.....do.....	July 30.....	6 a. m....	66.61	20	69	59½		Clear.
Do.....do.....	do.....	7 p. m....	66.42	29	84½	67		Clear; wind E. by S.
Do.....do.....	July 31.....	6 a. m....	66.46	15	62	57	3942	Clear.
Do.....do.....	do.....	7 p. m....	66.43	33	87	67		Clear; strong breeze E. by S.
Do.....do.....	August 1.....	5 a. m....	66.38	18	64½	55		Clear.
Do.....do.....	do.....	7 p. m....	66.21	32	86	62		Wind E. by S.; clear.
Do.....do.....	August 2.....	6 a. m....	66.18	21	70	58		Clear.
Camp 31, on the Timpa.....	do.....	7 p. m....	65.10	31	86	61	4523	Clear; high wind SE.
Do.....do.....	August 3.....	5.30 a. m.	65.11	21	71	57		Wind south.
Camp 32, on the Timpa.....	do.....	7 p. m....	64.74	30½	87	61	4761	Slight haze; wind south.

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:



X

SESTERIA DACTYLOIDES

Lith by E. Walter & Co. Balto.

QUESTION

FURTHER INVESTIGATION:

ADDITIONAL NOTES:



A NEW MEXICAN INDIAN WOMAN.

Lith. by E. Weber & Co. Balto.

Postcards from the Past: Ciphers and American Conflict

This primary source collection seeks to engage students in the topic of cryptography and explore different ways that it has been used throughout American history (as well as encouraging students to do a little decoding of their own!) Thomas Jefferson encouraged the use of ciphers during the Lewis and Clark expedition, and Navajo code talkers created the first unbroken cipher during World War II!



MILNER LIBRARY
*Illinois State University**

LIBRARY
OF CONGRESS
TEACHING
WITH **PRIMARY**
SOURCES
Consortium Member

Items in this collection:

Highsmith, Carol M, photographer. Tribute to Navajo Code Talkers by artist Doug Hyde, created in downtown Phoenix. -02-24. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/2018703819/>.

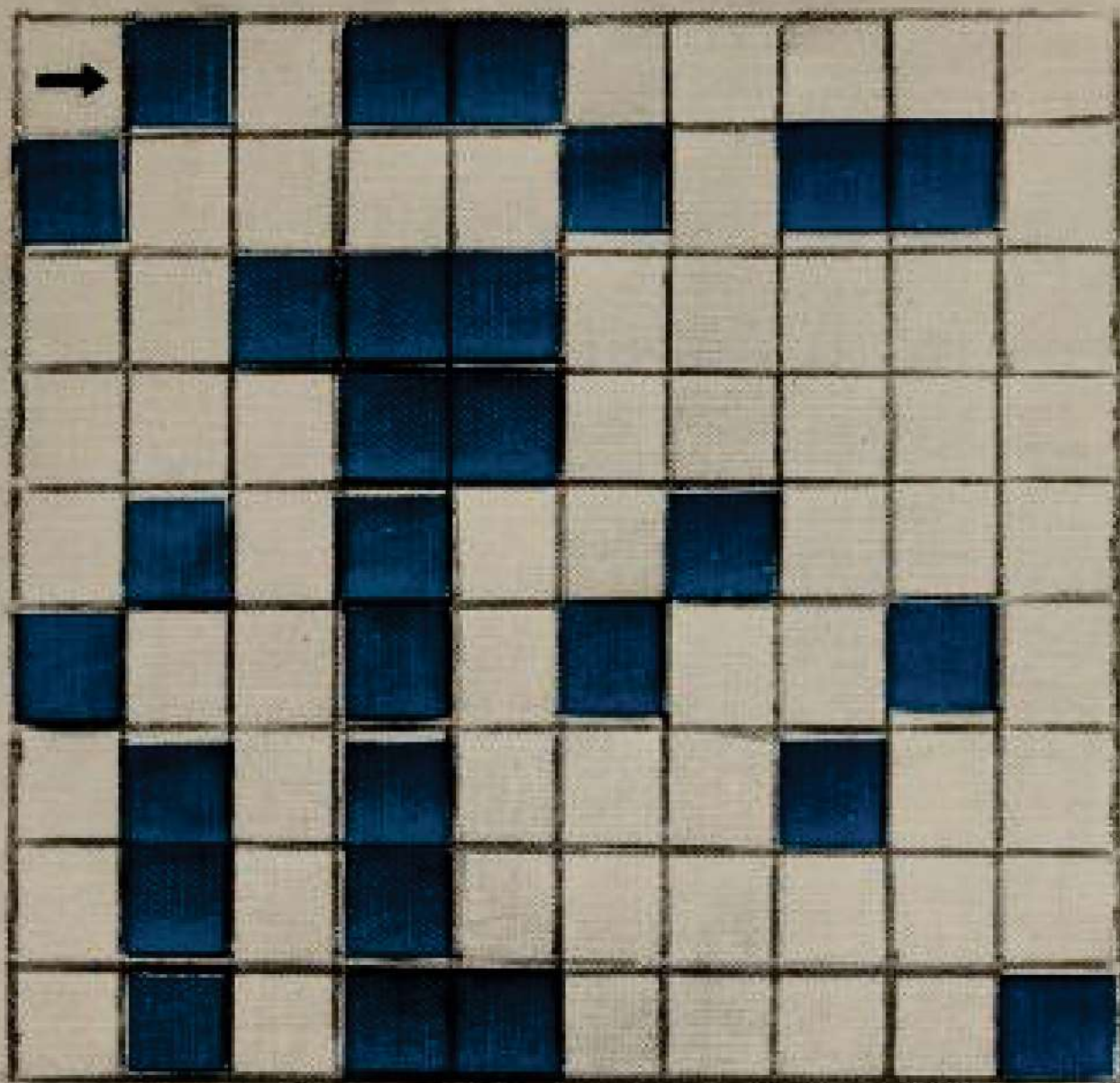
Captains Lewis & Clark holding a council with the Indians. Philadelphia: Printed for Matthew Carey. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/2001699652/>.

Thomas Jefferson to Meriwether Lewis, Cipher. -04-20, 1803. Manuscript/Mixed Material. Retrieved from the Library of Congress, <www.loc.gov/item/mtjbib012330/>.

Crain, Dorothy, and George Fabyan Collection. Ciphers for the Little Folks. Geneva, Ill., Riverbank laboratories, Educational department, 1916. Pdf. Retrieved from the Library of Congress, <www.loc.gov/item/17003395/>.

LESSON 1

1	●	●	●	●	●	A	= a a a a a
2	●	●	●	●	●	B	= a a a a b
3	●	●	●	●	●	C	= a a a b a
4	●	●	●	●	●	D	= a a a b b
5	●	●	●	●	●	E	= a a b a a
6	●	●	●	●	●	F	= a a b a b
7	●	●	●	●	●	G	= a a b b a
8	●	●	●	●	●	H	= a a b b b
9	●	●	●	●	●	I-J	= a b a a a
10	●	●	●	●	●	K	= a b a a b
11	●	●	●	●	●	L	= a b a b a
12	●	●	●	●	●	M	= a b a b b
13	●	●	●	●	●	N	= a b b a a
14	●	●	●	●	●	O	= a b b a b
15	●	●	●	●	●	P	= a b b b a
16	●	●	●	●	●	Q	= a b b b b
17	●	●	●	●	●	R	= b a a a a
18	●	●	●	●	●	S	= b a a a b
19	●	●	●	●	●	T	= b a a b a
20	●	●	●	●	●	U-V	= b a a b b
21	●	●	●	●	●	W	= b a b a a
22	●	●	●	●	●	X	= b a b a b
23	●	●	●	●	●	Y	= b a b b a
24	●	●	●	●	●	Z	= b a b b b





a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a
c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b
d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c
e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d
f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e
g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f
h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g
i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h
j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i
k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j
l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k
m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l
n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m
o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n
p	q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
q	r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
r	s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
s	t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
t	u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
u	v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
v	w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u
w	x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
x	y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w
y	z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x
z	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

Suppose the keyword to be 'antipodes'

write it thus. a n t i p o d e s a n t i p o d e s a n t i p o d e s
 to be cyphered u w x y z a b c d e f g h i j k l m n o p q r s t

then copying out the cyphered line thus. u w x y z a b c d e f g h i j k l m n o p q r s t
 numbers are thus. 18. is l e y. 1798 is thus b u b q

The method is this.

Look for t. in the 1st vertical column, & a in the 1st horizontal one. gives u

a	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
e	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
m	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
a	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
n	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...



Captains Lewis & Clark holding a Council with the Indians

