

IX.—THE EXTENT OF THE USE OF FISH GUANO AS A FERTILIZER.

By CHAS. W. SMILEY.

In the fall of 1879 the inquiry, "Is fish guano in any of its forms used by your farmers?" was addressed to every postmaster in the United States. From 30,022 returns, the following facts have been ascertained:

I. Fish guano is not used in any of the following twenty-one States and Territories: Alaska, 1; Arizona, 34; Arkansas, 435; Colorado, 161; Dakota, 184; Idaho, 45; Illinois, 1,154; Indiana, 792; Indian Territory, 46; Iowa, 836; Kansas, 749; Minnesota, 515; Missouri, 835; Montana, 64; Nebraska, 373; Nevada, 62; New Mexico, 54; Oregon, 211; Texas, 752; Utah, 113; and Wyoming, 46. The numbers given with each political division denote the number of negative replies received to the question, the total being 7,462, and covering every county in the divisions named.

II. In the following ten States and Territories there are indications of a very slight use of fish guano. In some cases the reporters may not have carefully distinguished between fish guano and other kinds, while others have evidently spoken of unmanufactured refuse of the fisheries. All reports that are believed to point to the use of fish in any form as a fertilizer are here quoted:

1. CALIFORNIA.—"Shrimp shucks from San Francisco are used by Chinese gardeners to a considerable extent:" Grass Valley, Nevada County. "To some extent in vegetable and strawberry culture:" Santa Clara, Santa Clara County.

The following statement by A. W. Saxe, M. D., of Santa Clara, is of interest: "I know of no one in this vicinity using fish as a fertilizer, except Judge D. C. Thomas, who was induced to try it by Mr. A. Barstow, of San Francisco. The material is mostly dried shrimps and waste of codfish and salmon. On strawberry land he uses from 300 to 400 pounds per acre. It pays well in the increased yield and finer quality of fruit. In 1879 he used ten tons on his extensive strawberry plantation, and would have used more if he could have gotten it. He sows it broadcast on the land after the first plowing and cultivates it into the soil. It stimulates vegetation wonderfully. It is gathered by the Chinese fishermen at or near Point Arena, in Mendocino County, put up in bales after being sun-dried and shipped to China, probably to be

used as a fertilizer but possibly as food, as there is nothing of organic nature the Chinaman will not eat. These bales weigh from 300 to 400 pounds each. The farmers in the vicinity of Point Arena have used it to some extent on wheat lands, and report it as increasing the crop from 30 to 50 per cent. At one time they used all they could get at the original price demanded by the Chinese; but the latter soon raised the price from \$8 to \$12 per ton, and it has not since been in as general use there as formerly."

"Nearly all farmers in the valley use it, obtaining it from Sacramento and San Francisco": Etna Mills, Siskiyou County. The foregoing constitute the affirmative reports. There are 486 negative reports on file from this State.

2. KENTUCKY.—"A very little used, which is obtained at our county seat, being brought from New York, Cincinnati, and Louisville": Wade's Mill, Clark County. "A little for experiment": Frankfort, Franklin County. "Very little is used, being obtained from Baltimore, Md., and Savannah, Ga.": Pulaski, Somerset County. There are 594 negative reports from this State.

3. LOUISIANA.—"Three hundred tons, obtained from Charleston, S. C., were used in 1880, principally by the Ames plantation": Gretna, Jefferson County. There are 205 negative reports from Louisiana.

4. MICHIGAN.—"What we use we manufacture ourselves, but are ignorant of the true way of doing it": Skanee, Baraga County. "A small amount, obtained at Grand Rapids and Jackson, is used, and by 15 or 20 men": Morgan, Bay County. "Fishermen use fish guano on their gardens somewhat; none bought or sold here": Mackinaw City, Cheboygan County. "Winegar, Miller & Co. use it on their farm at Martin's Island, Delta County": Escanaba, Delta County. "Only when fish are found dead on the lake shore, as is sometimes the case": Bear Lake, Manistee County. "What little is used here is bought by our farmers at Grand Rapids, 16 miles distant": South Blendon, Ottawa County. The number of negative reports from this State is 819.

5. MISSISSIPPI.—"The fish is used as a fertilizer": Bay Saint Louis, Hancock County. "Salt water sardines are used for guano and are very plentiful": Scranton, Jackson County. There are 332 negative reports from this State.

6. OHIO.—"Not in any quantity; \$150 per year is about the limit": Powhatan Point, Belmont County. "They use fish for fertilizer on the lake shore": Dover, Cuyahoga County. "Offal from fish house and worthless fish are used on the fields": Vermillion, Erie County. "Fertilizers are used quite extensively, fish guano forming a part": Barlow, Washington County. "Yes": Toledo, Lucas County. The number of negative answers from Ohio is 1,228.

7. TENNESSEE.—"It is": Asbury, Knox County. "Yes, it is being used of late by quite a number of farmers. I suppose that at least 500 farmers, averaging to use 800 pounds each, and living in this vicinity,

employed it in the year 1880": Cash Point, Lincoln County. "In exceptional cases; it has not been introduced extensively": Muddy Creek, Loudon County. "It is; farmers buy it at Knoxville," Unitia, Loudon County. "Yes; four farmers used 80 tons in 1880; they bought it at Knoxville": Wave Hill, Union County. "Yes; about twenty-five men used 500 pounds in 1880; it was obtained at Richmond, Va.": Fain's, Washington County. There are 589 negative reports from Tennessee.

8. WASHINGTON.—"It is by those living near the sound": Kamilche, Mason County. "Carcasses of dogfish and the refuse of herring fisheries are used by gardeners on Fillalgo Island": Artondale, Pierce County. "Yes; a little": Sumner, Pierce County. "In some cases": Lowell, Snohomish County. "In some cases; as a rule, our farmers have not utilized fish guano": Olympia, Thurston County. "In limited quantities; from Cypress Island fisheries": Anacortes, Whatcom County. "There has been little fish scrap used by a few with good results": Fidalgo, Whatcom County. "It is": Semiahmoo, Whatcom County. There have 121 negative reports been received from Washington.

9. WEST VIRGINIA.—"A little from Delaware": Capon Bridge, Hampshire County. "About two tons were used in 1880, being obtained from Winchester, Va.": Dillon's Run, Hampshire County. "About one-fourth of all guano used here is fish guano; nearly all farmers use some kind of guano; it is obtained from Winchester, Va.": Hanging Rock, Hampshire County. At Mutton Run and other places in Hampshire County there is also evidence of the use of fish guano. "Fish guano is but little used here, though I have seen it occasionally in the market.": Kendalia, Kanawha County. "In 1880 six farmers used about five sacks each of fish guano obtained in Baltimore": Racoon, Preston County. There are also affirmative answers from Crump's Bottom, Summers County, and from Kanawha Station, Wood County. There are 381 negative reports from all parts of the State.

10. WISCONSIN.—"There has been considerable fish guano used in this county; it is a valuable fertilizer in Bailey's Harbor, Gibraltar, Jacksonport, and Sturgeon Bay; they have used the culled fish with great success for several years past, but in 1880 the fishermen found market for most all kinds of fish.": Ellison Bay, Door County. "Yes.": Naugart, Marathon County. "The offal of the fisheries is utilized to some extent by the farmers near by": Menekaunee, Marinette County. Seven hundred and forty-two negative reports are on file from this State.

III. In seventeen States a somewhat extensive use of fish guano is reported. Assuming that the percentage of Territory corresponds with the percentage of affirmative and of negative replies to the question, the use of fish guano would extend over—

1. 18 per cent. of the territory of Pennsylvania.
2. 24 per cent. of the territory of New York.

3. 30 per cent. of the territory of New Hampshire.
4. 32 per cent. of the territory of North Carolina.
5. 33 per cent. of the territory of Vermont.
6. 36 per cent. of the territory of Alabama.
7. 45 per cent. of the territory of Virginia.
8. 46 per cent. of the territory of Maine.
9. 46 per cent. of the territory of Georgia.
10. 48 per cent. of the territory of South Carolina.
11. 50 per cent. of the territory of Maryland.
12. 51 per cent. of the territory of Florida.
13. 58 per cent. of the territory of New Jersey.
14. 60 per cent. of the territory of Massachusetts.
15. 69 per cent. of the territory of Delaware.
16. 79 per cent. of the territory of Connecticut.
17. 86 per cent. of the territory of Rhode Island.

Taking up each of these States by the nine sections into which they have been divided by the Post-Office Department, and specifying the number of counties in which this fertilizer is used, the percentage of territory on which it is reported would be exhibited by the following tables:

1.—PENNSYLVANIA.

Fish guano is used in 58 of its 67 counties and on 18 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN COUNTIES.

	Per cent.
In 4 of the 5 northwestern counties	13
In the 8 western counties.....	9
In the 6 southwestern counties	8
	<hr/>
	10

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 5 of the 7 northern counties	11
In 12 of the 16 central counties	12
In 5 of the six southern counties.....	22
	<hr/>
	15

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In the 3 northeastern counties	8
In 7 of the 8 eastern counties.....	16
In the 8 southeastern counties.....	40
	<hr/>
	21

2.—NEW YORK.

Fish guano is used in all the counties of the State except Lewis and Warren, and on 24 per cent. of its territory:

WESTERN AND SOUTHWESTERN COUNTIES.¹

	Per cent.
In 10 western counties	25
In 5 southwestern counties	13
	<hr/> 19

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 3 of the 4 northern counties	15
In 9 central counties	17
In 4 southern counties	13
	<hr/> 15

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In 4 of the 5 northeastern counties	09
In 8 eastern counties	23
In 15 southeastern counties	40
	<hr/> 24

3.—NEW HAMPSHIRE.

Fish guano is used in all the counties of this State, and on 30 per cent. of its territory:

SOUTHWESTERN COUNTIES.²

	Per cent.
In 2 southwestern counties	30

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 1 northern county	30
In 3 central counties	31
In 2 southern counties	28
	<hr/> 29

SOUTHEASTERN COUNTIES.³

	Per cent.
In 2 southeastern counties	35

4.—NORTH CAROLINA.

Fish guano is used in 75 of the 94 counties of this State, and on 32 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN COUNTIES.

	Per cent.
In 3 of the 6 northwestern counties	10
In 8 of the 12 western counties	19
In 9 of the 16 southwestern counties	18
	<hr/> 15

¹ There are no northwestern counties.

² There are no northwestern nor western counties.

³ There are no northeastern nor eastern counties.

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In the 12 northern counties.....	33
In 13 of the 14 central counties.....	38
In the 7 southern counties.....	41
	<u>37</u>

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In 11 of the 12 northeastern counties.....	60
In 10 of the 12 eastern counties.....	45
In 2 of the 3 southeastern counties.....	21
	<u>42</u>

5.—VERMONT.

Fish guano is used in all the counties of this State, and on 33 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN COUNTIES.

	Per cent.
In 2 of the 3 northwestern counties.....	17
In 2 western counties.....	14
In 1 southwestern county.....	28
	<u>19</u>

NORTHERN AND CENTRAL COUNTIES.⁴

	Per cent.
In 2 northern counties.....	40
In 1 central county.....	33
	<u>36</u>

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In 2 northeastern counties.....	38
In 2 eastern counties.....	43
In 1 southeastern county.....	55
	<u>45</u>

6.—ALABAMA.

Fish guano is used in 55 of the 66 counties of this State, and on 36 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN COUNTIES.

	Per cent.
In 4 of the 9 northwestern counties.....	46
In the 5 western counties.....	29
In 5 of the 7 southwestern counties.....	11
	<u>19</u>

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In the 8 northern counties.....	47
In 7 of the 9 central counties.....	38
In 7 of the 8 southern counties.....	27
	<u>37</u>

⁴ There are no southern counties.

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In the 5 northeastern counties.....	32
In the 7 eastern counties	71
In 7 of the 8 southeastern counties	52
	<hr/> 51

7.—VIRGINIA.

Fish guano is used in 84 of the 99 counties of this State, and on 45 per cent. of its territory:

WESTERN AND SOUTHWESTERN COUNTIES.⁵

	Per cent.
In 5 of the 7 western counties	26
In 9 of the 17 southwestern counties	9
	<hr/> 17

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 14 of the 15 northern counties	42
In 18 of the 20 central counties	45
In the 13 southern counties	49
	<hr/> 45

EASTERN AND SOUTHEASTERN COUNTIES.⁶

	Per cent.
In 17 of the 19 eastern counties	88
In the 8 southeastern counties.....	67
	<hr/> 77

8.—MAINE.

Fish guano is used in every county of Maine, and on 46 per cent. of its territory. In some parts of this State lobster shells are used as a fertilizer:

WESTERN AND SOUTHWESTERN COUNTIES.⁷

	Per cent.
In 2 western	26
In 6 southwestern.....	49
	<hr/> 37

CENTRAL AND SOUTHERN COUNTIES.⁸

	Per cent.
In 2 central counties	25
In 4 southern counties.....	64
	<hr/> 44

NORTHEASTERN AND EASTERN.⁹

	Per cent.
In 1 northeastern county	3
In 1 eastern county	76
	<hr/> 39

⁵There are no northwestern counties.

⁶There are no northeastern counties.

⁷There are no northwestern counties.

⁸There are no northern counties.

⁹There are no southeastern counties.

9.—GEORGIA.

Fish guano is used in 99 of the 137 counties of Georgia, and on 46 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN.

	Per cent.
In 11 of the 12 northwestern counties.....	45
In 17 of the 21 western counties	54
In 7 of the 16 southwestern counties.....	48
	49

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 14 of the 19 northern counties	40
In 18 of the 23 central counties.....	55
In 8 of the 13 southern counties	37
	44

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In 7 of the 10 northeastern counties.....	39
In 7 of the 11 eastern counties	43
In 10 of the 12 southeastern counties.....	45
	42

10.—SOUTH CAROLINA.

Fish guano is used in all the counties of this State except Chesterfield and Georgetown Counties, and on 48 per cent. of its territory:

NORTHWESTERN AND WESTERN COUNTIES.¹⁰

	Per cent.
In 6 northwestern counties	53
In 4 western counties	52
	52

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 6 northern counties	47
In 5 central counties	43
In 4 southern counties	38
	42

NORTHEASTERN AND EASTERN COUNTIES.¹¹

	Per cent.
In 5 northeastern counties.....	44
In 3 eastern counties	45
	44

11.—MARYLAND.

Fish guano is used in all the counties of this State except Alleghany County, and on 50 per cent. of its territory:

NORTHWESTERN COUNTIES.¹²

	Per cent.
In 4 northwestern counties	29

¹⁰ There are no southwestern counties.

¹¹ There are no southeastern counties.

¹² There are no western nor southwestern counties.

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 3 northern counties	43
In 4 central counties	39
In 3 southern counties	71
	<hr/> 51

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.

	Per cent.
In 2 northeastern counties	52
In 3 eastern counties	52
In 4 southeastern counties	93
	<hr/> 65

12.—FLORIDA.

Fish guano is used in all but 11 of the 39 counties of this State, and 51 per cent. of its territory:

NORTHWESTERN COUNTIES.¹³

	Per cent.
In 7 of the 10 northwestern counties	40

NORTHERN, CENTRAL, AND SOUTHWESTERN COUNTIES.

	Per cent.
In 7 of the 12 northern counties	31
In 6 of the 7 central counties	60
In 1 of the 2 southwestern counties	27
	<hr/> 39

NORTHEASTERN AND EASTERN COUNTIES.¹⁴

	Per cent.
In 5 northeastern counties	65
In 2 eastern counties	76
	<hr/> 70

13.—NEW JERSEY.

Fish guano is used in all the counties of this State, and on 58 per cent. of its territory:

NORTHWESTERN AND SOUTHWESTERN COUNTIES.¹⁵

	Per cent.
In 2 northwestern counties	32
In 4 southwestern counties	84
	<hr/> 58

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.

	Per cent.
In 3 northern counties	24
In 6 central counties	74
In 2 southern counties	100
	<hr/> 66

NORTHEASTERN COUNTIES.¹⁶

	Per cent.
In 4 northeastern counties	31

¹³ There are no western nor southwestern counties.

¹⁴ There are no southeastern counties.

¹⁵ There are no western counties.

¹⁶ There are no eastern nor southeastern counties.

14.—MASSACHUSETTS.

Fish guano is used in all the counties of this State, and on 60 per cent. of its territory:

NORTHWESTERN, WESTERN, AND SOUTHWESTERN COUNTIES.	
	Per cent.
In 1 northwestern county	73
In 2 western counties	48
In 1 southwestern county	80
	<hr/>
	67

CENTRAL COUNTY. ¹⁷	
	Per cent.
In 1 central county	38

NORTHEASTERN, EASTERN, AND SOUTHEASTERN COUNTIES.	
	Per cent.
In 1 northeastern county	69
In 3 eastern counties	55
In 5 southeastern counties	74
	<hr/>
	66

15.—DELAWARE.

Fish guano is used in all of the counties of Delaware, and on 69 per cent. of its territory:

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES. ¹⁸	
	Per cent.
In 1 northern county	56
In 1 central county	78
In 1 southern county	75
	<hr/>
	69

16.—CONNECTICUT.

Fish guano is used in all the counties of Connecticut, and on 79 per cent. of its territory:

NORTHWESTERN AND SOUTHWESTERN COUNTIES. ¹⁹	
	Per cent.
In 1 northwestern county	56
In 1 southwestern county	66
	<hr/>
	61
NORTHERN AND SOUTHERN COUNTIES. ²⁰	
	Per cent.
In 2 northern counties	88
In 2 southern counties	100
	<hr/>
	94

¹⁷ There are no northern nor southern counties.

¹⁸ There are no northwestern, western, southwestern, northeastern, eastern, nor southeastern counties.

¹⁹ There are no western counties.

²⁰ There are no central counties.

NORTHEASTERN AND SOUTHEASTERN COUNTIES.²¹

	Per cent.
In 1 northeastern county	56
In 1 southeastern county	90
	<hr/> 73

17.—RHODE ISLAND.

Fish guano is used in all the counties of Rhode Island, and on 86 per cent. of its territory:

NORTHERN, CENTRAL, AND SOUTHERN COUNTIES.²²

	Per cent.
In 1 northern county	86
In 1 central county	67
In 1 southern county	92
	<hr/> 82

EASTERN AND SOUTHEASTERN COUNTIES.²³

	Per cent.
In 1 eastern county	100
In 1 southeastern county	100
	<hr/> 100

For the purpose of exhibiting in full the data from which the foregoing percentages were derived, tables will now be given showing the exact number of affirmative and of negative answers received from each county in the seventeen States under consideration and arranged by sections:

1. PENNSYLVANIA.

Offices interrogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	CENTRAL COUNTIES (16).			
32	Blair	1	20	21
30	Cambria	2	16	18
46	Center	2	27	29
56	Clearfield	3	30	33
43	Columbia	7	10	17
37	Dauphin	6	15	21
17	Elk		9	9
58	Huntingdon	1	28	29
28	Juniata	8	12	15
68	Lycoming		25	25
22	Mifflin		11	11
7	Montour	1	4	5
43	Northumberland	7	21	28
38	Perry	2	16	18
25	Snyder		14	14
22	Union	2	11	13
562		37	269	306
	NORTHERN COUNTIES (7).			
100	Bradford	8	48	56
8	Cameron	1	6	7
33	Clinton	4	13	17
44	McKean	2	24	26
43	Potter		14	14
10	Sullivan		10	10
69	Tioga	3	33	36
322		18	148	166

²¹ There are no eastern counties.²² There are no northwestern, western, nor southwestern counties.²³ There are no northeastern counties.

1. PENNSYLVANIA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	NORTHEASTERN COUNTIES (3).			
66	Susquehanna	4	38	42
51	Wayne	1	26	27
35	Wyoming	2	17	19
152		7	81	88
	EASTERN COUNTIES (8).			
26	Carbon		12	12
42	Lackawanna	6	23	29
58	Lehigh	3	32	35
78	Luzerne	7	38	45
34	Monroe	3	11	14
46	Monroe	3	20	23
17	Northampton	3	7	10
74	Pike	7	29	36
	Schuylkill			
375		32	172	204
	SOUTHEASTERN COUNTIES (8).			
112	Berks	10	30	49
95	Bucks	33	25	58
126	Chester	26	40	66
46	Delaware	12	8	20
147	Lancaster	10	52	68
30	Lebanon	1	16	17
99	Montgomery	29	15	44
20	Philadelphia	3	2	5
675		130	197	327
	SOUTHERN COUNTIES (6).			
38	Adams	7	12	18
49	Bedford	5	20	25
42	Cumberland	2	23	25
43	Franklin	4	18	22
26	Fulton		13	13
93	York	16	32	48
291		34	118	152
	SOUTHWESTERN COUNTIES (6).			
93	Allegheny	3	26	29
45	Fayette	2	24	26
51	Greene	3	18	21
50	Somerset	1	24	25
84	Washington	3	26	29
85	Westmoreland	3	48	51
408		15	166	181
	WESTERN COUNTIES (8).			
56	Armstrong	2	30	32
43	Beaver	2	19	21
55	Butler	1	22	23
52	Clarion	2	26	28
59	Indiana	4	26	30
34	Jefferson	1	16	17
25	Lawrence	1	6	7
46	Mercer	3	22	25
370		16	107	123
	NORTHWESTERN COUNTIES (5).			
66	Crawford	6	31	37
49	Erie	5	24	29
16	Forest		10	10
50	Venango	2	23	25
36	Warren	3	20	23
226		16	108	124

1. PENNSYLVANIA—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	RECAPITULATION.			
562	Central counties	37	269	306
322	Northern counties	18	148	166
152	Northeastern counties	7	81	88
375	Eastern counties	32	172	204
675	Southeastern counties	130	197	327
291	Southern counties	34	118	152
408	Southwestern counties	15	166	181
370	Western counties	16	167	183
226	Northwestern counties	16	108	124
3,381		805	1,426	1,781

2. NEW YORK.

	CENTRAL COUNTIES (9).			
58	Cayuga	13	22	35
49	Chemango	8	25	28
34	Cortland	3	12	15
51	Madison	1	24	25
85	Oneida	7	32	39
75	Onondaga	6	35	40
76	Oswego	7	31	38
63	Otsego	6	36	42
25	Seneca	2	16	18
516		47	233	280
	NORTHERN COUNTIES (4).			
45	Herkimer	5	18	23
66	Jefferson	7	33	40
44	Lewis		20	20
76	Saint Lawrence	7	33	40
231		19	104	123
	NORTHEASTERN COUNTIES (5).			
42	Clinton	2	21	23
42	Essex	1	19	20
31	Franklin	3	14	17
12	Hamilton	1	5	6
26	Warren		13	13
153		7	72	79
	EASTERN COUNTIES (8).			
52	Albany	5	15	20
32	Fulton	6	14	20
32	Montgomery	3	15	18
53	Rensselaer	9	21	30
59	Saratoga	5	24	29
13	Schenectady	1	4	5
44	Schoharie	6	15	21
57	Washington	4	23	27
342		39	131	170
	SOUTHEASTERN COUNTIES (15).			
62	Columbia	6	25	31
72	Delaware	7	34	41
102	Dutchess	19	83	52
41	Greene	2	13	15
14	Kings	10	1	11
11	New York			
60	Orange	8	26	34
18	Putnam	2	9	11
59	Queens	27	7	34
15	Richmond	6	5	11
25	Rockland	4	11	15
83	Suffolk	61	3	64
66	Sullivan	1	38	39
77	Ulster	5	29	34
68	Westchester	14	24	38
782		172	258	430

2. NEW YORK—Continued.

Office Inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	SOUTHERN COUNTIES (4).			
57	Broome	3	20	28
26	Chemung	3	17	19
86	Tioga	3	15	18
42	Tompkins	4	13	17
161		11	71	82
	SOUTHWESTERN COUNTIES (5).			
58	Allegany	1	81	32
63	Cattaraugus	6	34	40
61	Chataugus	5	28	33
31	Schuyler	4	8	12
81	Steuben	5	40	45
294		21	141	162
	WESTERN COUNTIES (10).			
91	Erie	3	32	40
32	Genesee	4	11	15
40	Livingston	6	22	28
51	Monroe	7	21	28
49	Niagara	2	19	21
43	Ontario	7	13	20
37	Orleans	3	11	14
44	Wayne	12	13	25
38	Wyoming	5	20	25
26	Yates	5	11	16
451		59	173	232
	RECAPITULATION.			
516	Central counties	47	333	280
231	Northern counties	19	104	123
153	Northeastern counties	7	72	79
842	Eastern counties	89	131	170
782	Southeastern counties	172	258	430
161	Southern counties	11	71	82
294	Southwestern counties	21	141	162
451	Western counties	59	173	232
2,930		375	1,183	1,558

3. NEW HAMPSHIRE.

	CENTRAL COUNTIES (3).			
23	Belknap	4	9	13
67	Carroll	14	23	37
67	Grafton	11	33	44
141		29	65	94
	NORTHERN COUNTIES (1).			
84	Coos	6	14	20
	SOUTHEASTERN COUNTIES (2).			
65	Rockingham	12	28	40
26	Strafford	7	8	15
91		19	36	55
	SOUTHERN COUNTIES (2).			
51	Hillsborough	10	29	39
58	Merrimack	11	26	37
109		21	55	76

3. NEW HAMPSHIRE—Continued.

Office inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	SOUTHWESTERN COUNTIES (2).			
48	Cheshire.....	10	19	29
35	Sullivan.....	6	19	25
81		16	38	54
	RECAPITULATION.			
141	Central counties.....	29	65	94
34	Northern counties.....	6	14	20
91	Southeastern counties.....	19	36	55
109	Southern counties.....	21	55	76
81	Southwestern counties.....	16	38	54
458		91	208	299

4. NORTH CAROLINA.

	CENTRAL COUNTIES (14).			
35	Chatham.....	7	10	17
18	Cumberland.....		6	6
20	Davidson.....	3	8	9
16	Duplin.....	1	10	11
13	Harnett.....	4	5	9
18	Johnston.....	7		7
20	Montgomery.....	3	7	10
29	Moore.....	4	8	12
47	Randolph.....	5	17	22
20	Sampson.....	3	7	10
10	Stanley.....	2	2	4
31	Wake.....	9	4	13
9	Wayne.....	2	2	4
7	Wilson.....	2	1	3
293		52	85	137
	NORTHERN COUNTIES (12).			
23	Alamance.....	2	12	14
14	Caswell.....	2	8	10
19	Forsyth.....	3	6	9
8	Franklin.....	4	1	5
18	Granville.....	6	6	12
25	Guilford.....	3	10	13
8	Nash.....	3	1	4
14	Orange.....	1	7	8
16	Person.....	1	5	6
22	Rockingham.....	4	6	10
23	Stokes.....	2	9	11
13	Warren.....	5	1	6
203		35	72	107
	NORTHEASTERN COUNTIES (12).			
9	Bertie.....	4	3	7
6	Camden.....	1	1	2
4	Chowan.....		8	8
9	Currituck.....	3	4	7
6	Edgecombe.....	3	1	4
11	Gates.....	3		3
17	Halifax.....	7	5	12
8	Hertford.....	3	1	4
7	Martin.....	3	3	6
8	Northampton.....	4	3	7
2	Pasquotank.....	2		2
6	Perquimans.....	4	1	5
92		37	25	62

4. NORTH CAROLINA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
EASTERN COUNTIES (12).				
16	Beaufort.....	6	2	8
10	Carteret.....	4	3	7
8	Craven.....	4	2	6
8	Dare.....	2	2	4
8	Greene.....	1	2	3
11	Hyde.....		9	9
6	Jones.....		3	3
7	Lenoir.....	2	2	4
8	Pamlico.....	2	3	5
11	Pitt.....	3	5	8
3	Tyrrell.....	2		2
7	Washington.....	2	1	3
103		28	34	62
SOUTHEASTERN COUNTIES (3).				
1	New Hanover.....		1	1
13	Onslow.....	1	4	5
18	Pender.....	2	6	8
82		3	11	14
SOUTHERN COUNTIES (7).				
19	Anson.....	5	4	9
28	Bladen.....	1	11	12
7	Brunswick.....	1	4	5
20	Columbus.....	1	5	6
15	Richmond.....	5	3	8
24	Robeson.....	4	9	13
23	Union.....	9	2	11
136		20	38	64
SOUTHWESTERN COUNTIES (16).				
14	Cabarrus.....	2	4	6
15	Cherokee.....		6	6
4	Clay.....		4	4
20	Cleveland.....	2	7	9
14	Gaston.....	4	5	9
3	Graham.....		2	2
15	Haywood.....		9	9
14	Henderson.....	1	6	7
16	Jackson.....		9	9
11	Lincoln.....	1	2	3
9	Macon.....		0	0
18	Mecklenburg.....	5	3	8
13	Polk.....		5	5
20	Rutherford.....	1	9	10
6	Swain.....	1	2	3
11	Transylvania.....	1	4	5
203		18	83	101
WESTERN COUNTIES (12).				
9	Alexander.....	1	0	7
26	Buncombe.....	1	7	8
15	Burke.....	1	4	5
14	Caldwell.....		4	4
16	Catawba.....	4	0	10
13	Davie.....	1	7	8
80	Iredell.....	5	9	14
12	McDowell.....		5	5
23	Madison.....	3	6	9
17	Mitchell.....		11	11
20	Rowan.....	2	8	10
15	Yancey.....		3	3
210		18	76	94

4. NORTH CAROLINA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	NORTHWESTERN COUNTIES (6).			
9	Alleghany		2	2
24	Ashe		17	17
22	Surry	2	11	13
20	Watauga	1	5	6
31	Wilkes		14	14
17	Yadkin	3	4	7
123		6	53	59
	RECAPITULATION.			
203	Central counties	52	85	137
203	Northern counties	85	72	107
92	Northeastern counties	37	25	62
103	Eastern counties	28	34	62
32	Southeastern counties	3	11	14
186	Southern counties	26	38	64
203	Southwestern counties	18	83	101
210	Western counties	18	76	94
123	Northwestern counties	6	53	59
1,395		223	477	700

5. VERMONT.

	CENTRAL COUNTIES (1).			
33	Washington	8	16	24
	NORTHERN COUNTIES (2).			
20	Lamoille	1	15	16
40	Orleans	17	12	29
60		18	27	45
	NORTHEASTERN COUNTIES (2).			
39	Caledonia	6	16	22
18	Essex	7	5	12
57		13	21	34
	EASTERN COUNTIES (2).			
44	Orange	11	18	29
53	Windsor	17	19	36
97		28	37	65
	SOUTHEASTERN COUNTIES (1).			
47	Windham	17	14	31
	SOUTHWESTERN COUNTIES (1).			
35	Bennington	7	18	25
	WESTERN COUNTIES (2).			
41	Addison	1	23	24
49	Rutland	6	19	25
90		7	42	49
	NORTHWESTERN COUNTIES (3).			
27	Chittenden	3	14	17
41	Franklin	4	17	21
10	Grand Isle		4	4
78		7	35	42

5. VERMONT—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	RECAPITULATION.			
33	Central counties	8	16	24
60	Northern counties	18	27	45
57	Northeastern counties	13	21	34
97	Eastern counties	28	37	65
47	Southeastern counties	17	14	31
35	Southwestern counties	7	18	25
90	Western counties	7	42	49
78	Northwestern counties	7	35	42
497		105	210	315

6. ALABAMA.

CENTRAL COUNTIES (9).				
8	Autauga	1	1	2
14	Bibb	4	4	8
10	Chilton	3	3	6
16	Coosa	4	6	10
13	Elmore	2	2	4
34	Jefferson	5	11	16
15	Perry	4	4	8
18	Shelby	5	4	9
20	Talladega	3	6	9
148		25	41	66
NORTHERN COUNTIES (8).				
22	Blount	9	6	15
9	Cullman	1	3	4
16	Etowah	2	2	4
17	Limestone	5	4	9
24	Madison	5	8	13
19	Marshall	6	2	8
21	Morgan	2	11	13
23	Saint Clair	6	5	11
151		36	41	77
NORTHEASTERN COUNTIES (5).				
20	Calhoun	4	6	10
27	Cherokee	8	10	18
10	Cleburne	3	3	6
26	De Kalb	2	5	7
35	Jackson	1	15	16
127		18	39	57
EASTERN COUNTIES (7).				
14	Chambers	3	3	6
22	Clay	5	5	10
13	Lee	2	2	4
11	Macon	2	2	4
19	Randolph	5	3	8
12	Russell	3	3	6
18	Tallapoosa	6	1	7
109		27	11	38
SOUTHEASTERN COUNTIES (8).				
22	Barbour	4	5	9
17	Bullock	6	5	11
8	Coffee	2	1	3
13	Dale	4	3	7
7	Geneva	4	1	5
13	Henry	3	1	4
13	Montgomery	2	4	6
15	Pike	2	4	6
108		25	23	48

6. ALABAMA—Continued.

Office inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	SOUTHERN COUNTIES (8).			
12	Butler	3	3	6
14	Conecuh	5	2	7
13	Covington	2	2	2
15	Crenshaw	3	4	7
21	Dallas	1	12	13
12	Escambia	1	8	9
12	Lowndes	2	9	11
18	Wilcox	2	7	9
117		17	47	64
	SOUTHWESTERN COUNTIES (7).			
14	Baldwin	1	8	9
16	Choctaw	8	8	8
20	Clarke	2	8	10
22	Marengo	10	10	10
13	Mobile	1	9	10
17	Monroe	1	6	7
7	Washington	1	1	2
100		6	50	56
	WESTERN COUNTIES (5).			
10	Greene	1	3	4
16	Hale	1	7	8
19	Pickens	2	6	8
13	Saniter	1	9	10
28	Tuscaloosa	7	4	11
86		12	29	41
	NORTHWESTERN COUNTIES (9).			
13	Colbert	1	9	10
21	Fayette	5	7	12
12	Franklin	3	8	8
14	Lamar	4	4	4
12	Lauderdale	1	7	8
15	Lawrence	2	7	9
16	Marion	5	5	5
11	Winston	2	2	2
22	Walker	4	4	4
136		9	48	57
	RECAPITULATION.			
148	Central counties	25	41	66
151	Northern counties	36	41	77
127	Northeastern counties	18	39	57
109	Eastern counties	27	11	38
108	Southeastern counties	25	23	48
117	Southern counties	17	47	64
109	Southwestern counties	6	50	56
86	Western counties	12	29	41
136	Northwestern counties	9	48	57
1,091		175	329	504

7. VIRGINIA.

CENTRAL COUNTIES (20).				
35	Albemarle	4	12	16
12	Amelia	3	2	5
20	Auherst	2	2	2
15	Appomattox	2	8	5
40	Bedford	4	11	15
20	Buckingham	7	7	14
22	Campbell	5	7	12
20	Caroline	6	0	0

7. VIRGINIA—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
CENTRAL COUNTIES—Continued.				
15	Chesterfield	3	6	9
14	Cumberland	3	1	4
12	Fluvanna	5	4	9
18	Goochland	5	4	9
4	Greene	0	0	0
22	Hanover	3	6	9
9	Henrico	1	—	1
25	Louisa	9	6	15
21	Nelson	1	12	13
17	Orange	5	3	8
11	Powhatan	3	1	4
20	Spotsylvania	4	2	6
372		73	89	162
NORTHERN COUNTIES (15).				
2	Alexandria	2	—	2
7	Clarke	1	2	3
19	Culpeper	4	2	6
30	Fairfax	10	5	15
32	Fauquier	6	13	19
28	Frederick	5	6	11
36	Loudoun	9	14	23
13	Madison	1	7	8
13	Page	3	3	6
26	Prince William	7	7	14
10	Rappahannock	—	4	4
41	Rockingham	6	15	21
33	Shenandoah	8	12	20
11	Stafford	4	1	5
11	Warren	2	1	3
312		68	92	160
EASTERN COUNTIES (19).				
31	Accomack	17	1	18
7	Charles City	1	3	4
3	Elizabeth City	3	—	3
16	Essex	12	—	12
10	Gloucester	2	—	2
4	James City	2	—	2
12	King and Queen	10	—	10
14	King George	7	2	9
12	King William	3	3	6
11	Lancaster	9	—	9
7	Matthews	5	—	5
12	Middlesex	9	—	9
7	New Kent	—	3	3
13	Northampton	4	2	6
10	Northumberland	6	—	6
9	Richmond	7	—	7
1	Warwick	0	0	0
16	Westmoreland	11	—	11
3	York	2	1	3
198		110	15	125
SOUTHEASTERN COUNTIES (8).				
7	Isle of Wight	3	1	4
14	Nansemond	7	1	8
12	Norfolk	5	1	6
10	Prince George	4	2	6
7	Princess Ann	2	2	4
20	Southampton	9	2	11
12	Surry	5	4	9
11	Sussex	2	5	7
93		37	18	55

7. VIRGINIA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
SOUTHERN COUNTIES (13).				
19	Brunswick	3	4	7
20	Charlotte	8	9	17
16	Dinwiddie	6	3	9
38	Franklin	4	12	16
6	Greenville	1	1	2
33	Halifax	12	5	17
21	Henry	8	3	6
23	Lunenburg	5	4	9
26	Mecklenburgh	7	3	10
7	Nottoway	1	4	5
22	Patrick	1	7	8
41	Pittsylvania	9	7	16
7	Prince Edward	1	2	3
276		61	64	125
SOUTHWESTERN COUNTIES (17).				
9	Bland	1	5	6
11	Buchanan		5	5
19	Carroll	1	8	9
22	Floyd	2	7	9
14	Giles		6	6
24	Grayson	2	13	15
23	Lee		12	12
17	Montgomery	1	3	4
9	Pulaski		6	6
10	Roanoke	2	3	5
22	Russell		12	12
10	Scott		9	9
20	Smyth	1	8	9
20	Tazewell		9	9
26	Washington	1	14	15
13	Wise	1	4	5
12	Wythe		4	4
292		12	128	140
WESTERN COUNTIES (7).				
14	Alleghany	1	2	3
44	Augusta	7	16	23
12	Bath		6	6
22	Botetourt	4	5	9
9	Craig	1	4	5
13	Highland		6	6
20	Rockbridge	3	7	10
142		16	46	62
RECAPITULATION.				
372	Central counties	73	89	162
312	Northern counties	68	92	160
198	Eastern counties	110	15	125
93	Southeastern counties	37	18	55
276	Southern counties	61	64	125
292	Southwestern counties	12	128	140
142	Western counties	16	46	62
1,685		377	452	829

8. MAINE.

CENTRAL COUNTIES (2).				
112	Penobscot.....	20	48	68
32	Piscataquis.....	3	20	23
144		23	68	91
NORTHEASTERN COUNTIES (1).				
64	Arroostook.....	1	30	31

8. MAINE—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	EASTERN COUNTIES (1).			
58	Washington	31	10	41
	SOUTHERN COUNTIES (4).			
80	Hancock	46	13	59
33	Knox	7	15	22
42	Lincoln	21	8	29
58	Waldo	23	19	42
213		97	55	152
	SOUTHWESTERN COUNTIES (6).			
48	Androscoggin	9	23	32
80	Cumberland	42	12	54
65	Kennebec	14	23	37
76	Oxford	14	31	45
17	Sagadahoc	9	1	10
70	York	20	24	44
856		108	114	222
	WESTERN COUNTIES (2).			
83	Franklin	7	13	19
57	Somerset	7	28	35
90		14	40	54
	RECAPITULATION.			
144	Central counties	23	68	91
64	Northeastern counties	1	80	81
58	Eastern counties	31	10	41
213	Southern counties	97	55	152
356	Southwestern counties	108	114	222
90	Western counties	14	40	54
925		274	317	591

9. GEORGIA.

CENTRAL COUNTIES (23).				
4	Baldwin		1	1
5	Bibb	2	1	3
6	Butts	1	1	2
5	Crawford	2		2
7	Dodge	3		3
7	Greene	2	2	4
7	Hancock	3	2	5
7	Houston	5	2	7
10	Jasper	3	2	5
4	Johnson	1	1	2
12	Jones	4	1	5
8	Laurens	2	2	4
11	Monroe	4	2	6
7	Montgomery		2	2
4	Morgan	1	2	3
5	Newton	1	2	3
4	Pulaski		1	1
2	Putnam	1		1
2	Rockdale		1	1
2	Taliaferro		2	2
9	Twiggs	3	1	4
8	Washington	2	2	4
7	Wilkinson	1	3	4
143		41	33	74

9. GEORGIA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
NORTHERN COUNTIES (19).				
16	Cherokee	3	8	6
2	Clarke	1	1	1
10	Cobb	4	2	6
10	Dawson	2	5	7
10	De Kalb	2	8	5
9	Fannin	2	6	6
9	Forsyth	2	8	5
8	Fulton	5	2	7
7	Gilmer	2	5	5
14	Gwinnett	2	2	4
15	Hall	8	8	6
16	Jackson	4	1	5
6	Lumpkin	1	1	1
4	Milton	1	1	1
8	Oconee	1	1	1
3	Townsend	2	2	2
8	Union	1	4	5
8	Walton	2	2	2
7	White	1	5	6
164		83	48	81
NORTHEASTERN COUNTIES (10).				
11	Banks	3	8	6
18	Elbert	1	6	7
10	Franklin	4	2	6
8	Habersham	2	5	7
11	Hart	8	2	5
5	Lincoln	2	8	3
4	Madison	2	2	2
9	Oglethorpe	2	2	4
6	Rabun	2	2	2
3	Wilkes	1	1	1
91		17	26	43
EASTERN COUNTIES (11).				
6	Bulloch	2	1	3
14	Burke	4	8	7
9	Columbia	8	1	4
6	Effingham	1	3	4
7	Emanuel	1	1	1
1	Glascock	1	1	1
5	Jefferson	1	1	1
3	McDuffie	1	1	1
7	Richmond	4	4	4
19	Screven	4	6	10
6	Warren	1	1	1
83		16	21	37
SOUTHEASTERN COUNTIES (12).				
7	Appling	4	4	4
4	Bryan	2	2	2
5	Camden	1	1	2
2	Charlton	0	0	0
2	Chatham	1	1	2
7	Glynn	5	5	5
8	Liberty	8	5	8
3	McIntosh	1	1	2
5	Pierce	1	2	3
8	Tattnall	8	1	4
7	Ware	1	2	3
11	Wayne	2	5	7
69		19	23	42
SOUTHERN COUNTIES (13).				
11	Berrien	4	4	4
0	Brooks	8	8	8
5	Clinch	1	2	3
8	Coffee	4	1	5

9. GEORGIA—Continued.

Office interrogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	SOUTHERN COUNTIES—Continued.			
6	Colquitt	1	3	4
9	Dooley	1	2	3
3	Echols	1	1	1
5	Irwin	1	1	2
9	Lowndes	8	2	5
8	Pickens	1	2	2
12	Telfair	1	4	5
5	Wilcox	2	2	4
9	Worth	8	2	5
90		17	29	46
	SOUTHWESTERN COUNTIES (16).			
3	Baker		2	2
6	Calhoun	1		1
2	Clay			
7	Decatur	4	1	5
6	Dougherty			
4	Early			
5	Lee		3	3
8	Miller	3		3
3	Mitchell		2	1
3	Quitman	1		3
3	Randolph	1	2	3
7	Stewart	3		3
6	Sumter	1		1
2	Terrell		2	2
7	Thomas		3	3
1	Webster	0	0	0
68		14	15	29
	WESTERN COUNTIES (21).			
6	Campbell	1	3	4
17	Carroll	6	1	7
5	Chattahoochee		2	2
10	Coweta	3		3
7	Douglas		1	1
4	Fayette	1	1	2
8	Haralson	1	2	3
12	Harris	1	1	2
10	Heard	2	3	5
9	Henry	3		3
7	Macon	1	1	2
6	Marion		2	2
14	Meriwether	5	3	8
2	Muscogee		1	1
10	Pike	3		3
5	Schley	4	1	5
4	Spalding	1	2	3
7	Talbot	2	1	3
4	Taylor		2	2
11	Troup	1	3	4
6	Upson	3	2	5
164		38	32	70
	NORTHWESTERN COUNTIES (12).			
15	Bartow	2	4	6
5	Catoosa	1	2	3
13	Chattooga	3	2	5
4	Clayton	8		3
7	Dade		4	4
15	Floyd	5	2	7
14	Gordon	8	5	8
9	Murray	1	2	3
8	Paulding	2	3	5
5	Polk	2		2
17	Walker	3	3	5
14	Whitfield	3	6	9
126		27	33	60

9. GEORGIA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		• Yes.	No.	Total.
	RECAPITULATION.			
143	Central counties	41	33	74
164	Northern counties	33	48	81
91	Northeastern counties	17	26	43
83	Eastern counties	16	21	37
69	Southeastern counties	19	23	42
96	Southern counties	17	29	46
68	Southwestern counties	14	15	29
164	Western counties	38	32	70
126	Northwestern counties	27	33	60
1,004		222	200	482

10. SOUTH CAROLINA.

CENTRAL COUNTIES (5).				
12	Clarendon	1	4	5
22	Lexington	3	3	6
16	Orangeburgh	3	4	7
9	Richland	2	2	4
15	Sumter	3	3	6
74		12	16	28
NORTHERN COUNTIES (6).				
14	Chester	1	4	5
14	Fairfield	2	6	8
9	Kershaw	1	1	2
16	Lancaster	4	1	5
21	Union	6	3	9
23	York	3	4	7
97		17	19	36
NORTHEASTERN COUNTIES (5).				
13	Chesterfield		6	6
14	Darlington	3	5	8
11	Horry	3	2	5
27	Marion	8	7	15
8	Marlborough	2		2
73		16	20	36
EASTERN COUNTIES (3).				
19	Charleston	5	5	10
6	Georgetown		2	2
16	Williamsburgh	4	4	8
41		9	11	20
SOUTHERN COUNTIES (4).				
20	Barnwell	3	8	11
12	Beaufort	1	4	5
25	Colleton	6	8	14
12	Hampton	4	3	7
69		14	23	37
WESTERN COUNTIES (4).				
27	Abbeville	7	7	14
22	Aiken	5	5	10
40	Edgefield	9	9	18
14	Newberry	6	4	10
103		27	25	52

10. SOUTH CAROLINA—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	NORTHWESTERN COUNTIES (6).			
25	Anderson.....	10	2	12
24	Greenville.....	5	9	14
29	Laurens.....	6	6	12
21	Oconee.....	6	6	12
15	Pickens.....	2	6	8
26	Spartanburgh.....	12	7	19
160		41	36	77
	RECAPITULATION.			
74	Central counties.....	12	16	28
97	Northern counties.....	17	19	36
73	Northeastern counties.....	16	20	36
41	Eastern counties.....	9	11	20
69	Southern counties.....	14	23	37
103	Western counties.....	27	25	52
160	Northwestern counties.....	41	36	77
617		136	150	286

11. MARYLAND.

CENTRAL COUNTIES (4).				
33	Anne Arundel	8	7	15
27	Howard	2	10	12
44	Montgomery	9	7	16
41	Prince George's	4	11	15
145		23	35	58
NORTHERN COUNTIES (3).				
86	Baltimore	23	21	44
48	Carroll	5	18	23
46	Harford	9	11	20
188		37	50	87
EASTERN COUNTIES (3).				
21	Caroline	7	6	13
11	Queen Anne	2	3	5
17	Talbot	5	4	9
49		14	13	27
NORTHEASTERN COUNTIES (2).				
28	Cecil	12	6	18
18	Kent	8	8	11
46		15	14	29
SOUTHEASTERN COUNTIES (4).				
29	Dorchester	17		17
14	Somerset	8	2	10
13	Wicomico	8		8
14	Worcester	7	1	8
70		40	3	43
SOUTHERN COUNTIES (3).				
18	Calvert	6	4	10
25	Charles	8	4	12
25	St. Mary's	10	2	12
68		24	10	34

11. MARYLAND—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	. NORTHWESTERN COUNTIES (4).			
16	Alleghany		11	11
59	Frederick	13	16	29
16	Garrott	1	5	6
34	Washington	5	15	20
125		19	47	66
	RECAPITULATION.			
145	Central counties	23	35	58
180	Northern counties	37	50	87
49	Eastern counties	14	13	27
46	Northeastern counties	15	14	29
70	Southeastern counties	40	3	43
68	Southern counties	24	10	34
125	Northwestern counties	19	47	66
683		172	172	344

12. FLORIDA.

CENTRAL COUNTIES (7).				
8	Hernando	4	2	6
13	Hillsborough	6	3	9
7	Levy	2	2	4
15	Marion	3	6	9
32	Orange	16	5	21
3	Polk		1	1
9	Sumter	4	4	8
87		35	23	58
NORTHERN COUNTIES (12).				
17	Alachua	8	3	11
3	Baker	1	1	2
7	Bradford		1	1
10	Columbia	1	4	5
7	Hamilton		2	2
6	Jefferson	2	2	4
7	La Fayette		4	4
5	Leon	1	2	3
4	Madison		2	2
12	Suwannee	1	7	8
7	Taylor	1	3	4
7	Wakulla		2	2
92		15	33	48
NORTHEASTERN COUNTIES (5).				
7	Clay	3	3	6
10	Duval	6	2	8
12	Nassau	2	3	5
22	Putnam	13	4	17
9	St. John's	2	2	4
60		26	14	40
EASTERN COUNTIES (2).				
6	Brevard	3	3	6
17	Volusia	10	1	11
23		18	4	17
SOUTHEASTERN COUNTIES (1).				
2	Dade			

12. FLORIDA—Continued.

Offices inter- rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	SOUTHERN COUNTIES (2).			
9	Manatee	3	6	9
3	Monroe		2	2
12		3	8	11
	NORTHWESTERN COUNTIES (10).			
6	Calhoun	2	2	4
9	Escambia	2	5	7
4	Franklin	1	1	2
8	Gadsden	4	2	6
3	Holmes		1	1
7	Jackson	2	1	3
4	Liberty		3	3
5	Santa Rosa		3	3
6	Walton	2	1	3
7	Washington	1	2	3
59		14	21	35
	RECAPITULATION.			
87	Central counties	35	23	58
92	Northern counties	15	33	48
60	Northeastern counties	26	14	40
23	Eastern counties	13	4	17
2	Southeastern counties			
12	Southern counties	3	8	11
59	Northwestern counties	14	21	35
335		106	103	209

13. NEW JERSEY.

CENTRAL COUNTIES (6).				
54	Burlington	34	3	37
20	Mercer	9	4	13
25	Middlesex	15	7	22
61	Monmouth	36	9	45
27	Ocean	20	2	22
34	Somerset	5	17	22
221		119	42	161
NORTHERN COUNTIES (3).				
58	Morris	13	24	37
22	Passaic	8	6	9
41	Sussex	2	20	28
121		18	56	74
NORTHEASTERN COUNTIES (4).				
46	Bergen	7	12	19
21	Essex	4	9	13
16	Hudson	3	4	7
14	Union	1	8	9
97		15	33	48
SOUTHERN COUNTIES (2).				
21	Atlantic	16		16
20	Cape May	17		17
41		33		33
SOUTHWESTERN COUNTIES (4).				
19	Camden	12		12
29	Cumberland	15	5	20
21	Salem	6	2	8
36	Gloucester	10	3	22
105		52	10	62

13. NEW JERSEY—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	NORTHWESTERN COUNTIES (2).			
50	Hunterdon	16	16	32
45	Warren	6	30	36
101		22	46	68
	RECAPITULATION.			
221	Central counties	119	42	161
121	Northern counties	18	56	74
97	Northeastern counties	15	33	48
41	Southern counties	33	—	33
105	Southwestern counties	62	10	62
101	Northwestern counties	22	46	68
686		250	187	446

14. MASSACHUSETTS.

	CENTRAL COUNTIES (1).			
122	Worcester	35	56	91
	NORTHEASTERN COUNTIES (1).			
65	Essex	20	13	42
	EASTERN COUNTIES (3).			
112	Middlesex	47	29	76
62	Norfolk	15	23	38
17	Suffolk	4	2	6
101		66	54	120
	SOUTHEASTERN COUNTIES (5).			
62	Barnstable	35	11	46
46	Bristol	28	4	32
7	Dukes	4	2	6
1	Nantucket	1	1	2
70	Plymouth	28	16	44
188		95	34	129
	SOUTHWESTERN COUNTIES (1).			
43	Hampden	20	5	25
	WESTERN COUNTIES (2).			
62	Berkshire	14	24	38
45	Hampshire	19	12	31
107		33	36	69
	NORTHWESTERN COUNTIES (1).			
54	Franklin	30	11	41
	RECAPITULATION.			
122	Central counties	35	56	91
65	Northeastern counties	20	13	42
191	Eastern counties	66	54	120
186	Southeastern counties	95	34	129
43	Southwestern counties	20	5	25
107	Western counties	33	36	69
54	Northwestern counties	30	11	41
768		308	209	517

15. DELAWARE.

Offices inter- gated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	CENTRAL COUNTIES (1).			
30	Kent	14	4	18
	NORTHERN COUNTIES (1).			
44	New Castle	10	8	18
	SOUTHERN COUNTIES (1).			
33	Sussex	15	5	20
	RECAPITULATION.			
30	Central counties	14	4	18
44	Northern counties	10	8	18
33	Southern counties	15	5	20
107		39	17	56

16. CONNECTICUT.

	NORTHERN COUNTIES (2).			
76	Hartford	47	6	53
36	Tolland	18	3	21
112		65	9	74
	NORTHEASTERN COUNTIES (1).			
56	Windham	18	14	32
	SOUTHEASTERN COUNTIES (1).			
50	New London	35	4	39
	SOUTHERN COUNTIES (2).			
30	Middlesex	19		19
58	New Haven	37		37
88		56		56
	SOUTHWESTERN COUNTIES (1).			
66	Fairfield	29	15	44
	NORTHWESTERN COUNTIES (1).			
82	Litchfield	27	21	48
	RECAPITULATION.			
112	Northern counties	65	9	74
56	Northeastern counties	18	14	32
50	Southeastern counties	35	4	39
88	Southern counties	56		56
66	Southwestern counties	29	15	44
82	Northwestern counties	27	21	48
454		230	63	293

17. RHODE ISLAND.

	CENTRAL COUNTIES (1).			
18	Kent	8	4	12
	NORTHERN COUNTIES (1).			
43	Providence	30	5	35

17. RHODE ISLAND—Continued.

Offices inter-rogated.	Counties.	Number of replies.		
		Yes.	No.	Total.
	EASTERN COUNTIES (1).			
6	Bristol.....	3		3
	SOUTHEASTERN COUNTIES (1).			
9	Newport.....	5		5
	SOUTHERN COUNTIES (1).			
34	Washington	24	2	26
	RECAPITULATION.			
18	Central counties	8	4	12
43	Northern counties	30	5	35
6	Eastern counties	3		3
9	Southeastern counties	5		5
34	Southern counties	24	2	26
110		70	11	81

Recapitulation of the seventeen States that use fish guano.

Offices inter-rogated.	States.	Number of replies.			Per cent. of affirmative replies.
		Yes.	No.	Total.	
3,381	1. Pennsylvania.....	305	1,426	1,731	18
2,930	2. New York.....	375	1,183	1,558	24
456	3. New Hampshire.....	91	208	299	30
1,395	4. North Carolina.....	223	477	700	32
407	5. Vermont.....	105	210	315	33
1,091	6. Alabama.....	175	329	504	36
1,685	7. Virginia.....	877	452	829	45
925	8. Maine.....	274	317	591	46
1,004	9. Georgia.....	222	200	482	46
617	10. South Carolina.....	136	150	286	48
683	11. Maryland.....	172	172	344	50
835	12. Florida.....	106	103	209	51
686	13. New Jersey.....	259	187	446	58
768	14. Massachusetts.....	308	209	517	60
107	15. Delaware.....	39	17	56	69
454	16. Connecticut.....	230	63	293	79
110	17. Rhode Island.....	70	11	81	86
17,124		3,407	5,774	9,241	

SPECIAL AFFIRMATIVE STATEMENTS FROM DELAWARE.

For the purpose of testing the matter further in a State largely reported as using this fertilizer, special questions were sent out, in answer to which the statements quoted below were obtained. Time prevented prosecuting the inquiry in other States.

"The fish guano used here is obtained out of town, and amounts to very little." J. M. Martin, Cool Spring, Sussex County.

"Mr. J. F. Price and about four others use 30 tons annually, which they obtain in Baltimore." P. B. Alrich, Summit Bridge, New Castle County.

"The small amount used has been obtained from W. N. Needles, 42 South Delaware avenue, Philadelphia." William G. Herring, P. M., Milford, Kent County.

"Only used here in small quantities and obtained from Philadelphia mostly." J. A. Lynch, P. M., Robbins, Sussex County.

"Several thousand tons are used in this region by hundreds of farmers and truckers who sell vegetables in the city. Nearly all dealers in fertilizers in Pennsylvania and New Jersey sell it. They buy it from ourselves and others who prepare it. It is made on the coasts of Long Island, Connecticut, and Maine. It is shipped to us in bulk, by vessels, after which we grind and bag it." Walton, Ham & Co., Wilmington, Del.

"About one hundred tons are being used by forty farmers, among whom are W. Phillips & Bro., Phillips Hill, Del., G. P. Hickman and J. Single, Frankford, Del. Wilgus, Derickson & Co., Roxana, Del., and Gum & Bro., Frankford, Del., are dealers who buy it from a manufactory at Fenwick's Island, near Roxana, Del." J. T. Long, P. M., Frankford, Del.

"Fish guano is not much used. The farmers buy spoiled salt fish in Philadelphia, and manufacture it for their own use to some extent." L. W. Lattomus, Townsend, New Castle County.

"One hundred and fifty tons are used by seventy-five farmers, among whom are Spencer A. Phillips, Millsborough, Del., John Wilgus, Roxana, Del., and Horace Hickman, Frankford, Del. Holland, Wilgus & Co., E. Townsend, and John A. Gum are dealers, who buy mostly at Fenwick's Island, Del." J. E. Lynch, Roxana, Sussex County.

"There are two or three seines between Indian River and Fenwick's Island light-house that are hauled for fish to be used as fertilizer. Henry Hudson and William S. Evans have built a house for making the fish into guano, but the farmers here are so anxious for the fish that they go to the beach and buy them for manure before there is time to make them into guano. The fish we call 'old wives.' They are called moss bunkers, North. I have used them on my land and they are better than any guano I ever had." P. M., Ocean View, Sussex County.

"I used half a ton on strawberries last fall. It was made by the New Jersey Chemical Company, Camden, N. J., from alewives or mud shad, which are caught on the New Jersey shore." John T. Jakes, Wyoming, Kent County.

"It has been used on three farms, especially by Alexander Guthrie. It is brought from Wilmington." Jasper C. Way, P. M., Hockessin, New Castle County.

"Five tons are used annually by Thos. E. Woolens, George B. Dougherty, and seven or eight other farmers. They buy it from J. J. Allen's Sons, Philadelphia, Pa., and from John A. Wilson, Wilmington, Del." Charles Green, jr., Rockland, New Castle County.

"J. M. Arthurs and W. D. Wilds, Kenton, Del., sell to a few farmers here." J. B. Messick, Down's Chapel, Kent County.

"H. A. Murray, Dover, Del., formerly made it, but has engaged in other business. Those who formerly used fish guano here have discontinued it, finding by experience that other fertilizers were preferable." Julia S. Bradley, P. M., Canterbury, Kent County.

"Four or five tons are used by from five to ten persons, among whom are E. D. Hitchens and H. Hickman. T. E. Records and E. D. Hitchens deal in it, and buy it in Philadelphia and New York." D. W. Brereton, P. M., Lewes, Sussex County.

FERTILIZING PRODUCTS.

The following statement is by Mr. A. M. Wilcox, secretary of the Fish Bureau, Boston, Mass.: "During the past few years more attention has each year been given to the fertilizing qualities contained in the large amount of fish waste and scrap that was formerly constantly being thrown away. Three of the numerous factories in and around Boston use any fish products, making a specialty of this line, utilizing all the scrap and waste from the numerous boneless fish factories, menhaden chum, and the large amount of refuse from the market fishermen, such as fish heads, all kinds of unmarketable fish, in fact everything connected with the fish that was formerly thrown away is now utilized at the fertilizing factory, the fishermen receiving quite a sum for the same.

"The process of manufacture is simple and varies but little in any of the factories, fish scrap, bone phosphate, and sulphuric acid being the main ingredients used by all. The use of this fertilizing material has shown such favorable results, the demand is constantly on the increase. Dealers give the following as the distribution from the various factories of New England during 1879:

	Tons.
New York	40, 000
North Carolina	20, 000
South Carolina	20, 000
Virginia	45, 000
Georgia	45, 000
New England	10, 000

"Maryland and New Jersey take a less amount. The newer States of the West as yet care for but little if any fertilizing compounds. A large amount is also exported to the West Indies. Fourteen thousand tons were manufactured by the three factories here during 1879. The price ranged from \$25 to \$35 a ton."

The *proportional* part of the capital and products to the credit of the fishing industry is as follows:

Capital	\$100, 000
Men employed	90
Value of product	\$140, 000