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ALABAMA:

AS IT WAS, AS IT IS, AND AS IT WILL BE.

A WORK

EXHIBITING THE AGRICULTURAL ACTUALITIES OF THE SOILS OF THE STATE, WHEN PROPERLY CULTIVATED AND TILLED, IN COMPARISON WITH THOSE OF THE OTHER STATES OF THE UNION; ITS PRESENT AGRICULTURAL DEFORMITIES, AND THE REMEDY THEREFOR; ITS MINERAL AND OTHER INDUSTRIAL INTERESTS, FOUNDED UPON STATISTICS AND ACTUAL RESULTS.

PREPARED AT THE REQUEST OF THE SOUTH & NORTH ALABAMA RAILROAD CO.

BY

JOHN T. MILNER,

LATE CHIEF ENGINEER AND GENERAL SUPERINTENDENT.

MONTGOMERY, ALA.:

BARRETT & BROWN, STEAM BOOK AND JOB PRINTERS AND BINDERS.

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ALABAMA.

In 1860, Alabama was a great and rich State—the seventh in aggregate of wealth of the Union of States, and exceeded in the *aggregate production* of agricultural values by only *Illinois, Pennsylvania, New York and Mississippi.* Alabama was then at the height of her glory. Agricultural labor was better rewarded here than in any other State, except in Louisiana, Mississippi and California. How stands the matter now? Instead of number seven in the aggregate of our wealth, we are put down in the census of 1870 as exceeding only Texas, Kansas, West Virginia, Oregon, Nebraska, Delaware and Florida; or a reduction of real and personal values from 792,000,000 to 201,855,841 dollars, or about one fourth what it was before the war. At that time the value of her agricultural products, *per capita* of her farm population, was double that of any of the free States from Maine to California, except California, Illinois and Iowa. She stands now, as will appear from the record, as made up by the Agricultural Bureau of our Government in her *per capita* crop production, scarcely one-half in value of that of *the poorest* of the States in the North and West. To find what is the matter with Alabama, and to propose a remedy, if any is to be found, is the object of my book.

The South & North Alabama Rail Road, though traversing throughout three-fourths of its length the mineral region of the State, is like every other interest in the State of Alabama, dependent mainly upon agriculture for a support. If the agriculture of our State was now what it was when this road was commenced, and what I hope it will be again, the stock of this great rail road, costing ten millions of dollars, would be at par everywhere in the markets of the world. I

can very clearly see, therefore, how it is to the interest of this road, to inquire into the causes of the ruin of the agriculture of Alabama, and to do all in its power to restore it to its former splendor. The State of Alabama expects as much of this corporation, though in her corporate capacity as a State, she has rendered but little aid in dollars and cents in the construction of this rail road, she has ever and always, done all in her power, and, when before the war she was rich, powerful, and wealthy, she placed on her statute books an obligation to give one million of dollars in gold, as a bonus, for the completion of this great work; and it would have been paid had Alabama lived. The part this corporation proposes to take in repeopling Alabama and rebuilding her industries, is but a partial return for that deep feeling and favor which this railway has ever received from Alabama and her people.

The fact is disclosed by the Federal census of 1870, that the agriculture of Georgia, Alabama and Mississippi, (the three leading cotton States before the war,) as can be seen from Table No. 15, hereafter given, is less than one-half in bushels and pounds, and measured by the same standard, in dollars and cents, of what it was before the war. Even their farm valuation has followed the same ratio and rule, and has fallen from $536,657,802 in 1860, to $244,015,070 in 1870.

This measure of loss exists everywhere in the South, and is greater or less in proportion to the number of negroes in any State, or any section of any State. As was heretofore stated, this paper is simply a synopsis of my forthcoming work on Alabama, and as such, it will be impossible to give in detail, all the arguments and facts upon which this work is founded. I will refer, however, to the authorities for every statement I may make, so that every one interested can examine the facts for themselves. This synopsis being written at the request of the South & North Alabama Rail Road Company, the arguments will be drawn from, and confined to, the counties in Alabama, along and contiguous to this road.

This road begins at the city of Montgomery, and runs through the counties of Montgomery, Elmore, Chilton, Shelby, Jefferson, Walker, Blount, Winston and Morgan, to Decatur, on the Tennessee river. The city of Montgomery, the

southern terminus of the road, lies practically in the centre of the cretaceous or prairie formation, extending entirely across the State—a distance of two hundred miles, and about fifty miles wide. This section, commonly called the Black, or Cotton Belt, covers an area of 10,000 square miles, or one-fifth of that of the whole State, and, before the war, produced more of agricultural values than any like area in the United States, and, perhaps, in the world. Decatur, the northern terminus, is practically in the centre of the Valley of North Alabama, as it is called—a region of country covering the entire northern end of the State, in length about one hundred and fifty miles, and about fifty miles wide, covering an area of about 7,500 square miles. This section of country, the most beautiful and delightful in this, or any other State in the Union, was, before the war, next in importance in this State to the Black Belt, above referred to. Between these two sections at the northern and southern termini of the road, lies the Appalachian chain of mountains, with its rocks and minerals, its agricultural soils, and its ridges and elongated valleys; precisely as they are found in Pennsylvania, Virginia and Tennessee. The Appalachian mountains commence sinking away before they reach the border of Alabama, and by the time they reach the centre of the State, where they are crossed by the South & North Alabama Rail Road, they represent only a broad, elevated plateau, about one hundred and fifty miles across. About 1,000 feet of the rough, rugged mountains, and barren upper measures of the State's farther north, are washed away in Alabama; and all the glittering minerals and metals of commerce, except silver, lie in Alabama, on the surface of a great plain, so to speak; any and all of them capable of being aggregated at any given point, at the most trifling expense, when compared with other sections of our country, where all these minerals of value are found. We find further, that as the rough, rugged, barren and interfering features of the mountain system farther north have been washed away, so have the noxious, hurtful and negative elements, found in the minerals themselves, been leached out and lost. This elevated plateau, or mountain region of Alabama, as it is called, has been cultivated, and is capable of being cultivated all over, and from the figures

hereafter given, it will be seen that the agricultural soils of this region have given to the husbandman as rich a reward as, upon an average, did those of Ohio and Indiana in 1860. All the minerals, of value in the State, are found in this region.

A section of country lying on each side of the road will be considered, and its agricultural and other industrial features will be measured, as will those of the Black Belt, and the valley of North Alabama. This great thoroughfare, although it has customers in every county in the State, except, perhaps, Sanford, Marion and Pickens, on the western border, is more immediately and directly interested in the country along the line and at each end of the road; and for this reason, and this reason alone, I will confine myself to those sections of Alabama. Alabama is a good country, all over and everywhere. The soils of some portions pay agricultural labor better than in others; but through the varied industries of the State, labor, labor, good, effective labor, receives a rich and sufficient return everywhere in Alabama. I have lived in and been over all the old States of our Union, west of New York, and have also lived in and traveled all over the vast States and Territories west of the Mississippi River to the Pacific Ocean, except Arizona, Montana, Dakota, and New Mexico; and I find no where in my travels any fifty thousand square miles of territory surpassing or even equalling Alabama, in soil, in climate, in minerals, in productions, and in all the natural elements for producing comfort and wealth. Labor, honest, true labor, is wanting now in our State, to make her not only seventh—as she stood in 1860—of the States of the Union in wealth, but the equal and peer of any and all of them in agriculture, in manufactures, in arts, and in all things that render a people rich, powerful and great. I do not propose to measure the future of Alabama in any other way than by reference to her past history and results. God alone, without figures, can see into and divine the future of countries and States. Any information that we get or give, that is worth having, must be confined to what we ourselves see or know, or what has happened and been seen or noted by others. Any statement in this synopsis that is not founded on authority of this kind, may be set aside and counted as naught.

I will place first on the stand, with the view of ascertaining its value as an agricultural region, the Valley of North Alabama.

The Tennessee is the most remarkable river, for its length, in our country, for the fertility of the soils of the regions though which it passes, and for the manner in which these soils are made fertile. Rising in the Valley of Virginia, it traverses the fertile Valley of East Tennessee, an extension southward to Alabama, of the Valley of Virginia, to Chattanooga. Here it breaks through the Cumberland and Alleghany mountains—here from 1,500 to 2,000 feet high—cleaving a channel through these mountains down to their base, wide enough only for the great river to pass through, until it reaches the line of the State of Alabama. Here the superincumbent mountain lying above the limestone, being softer, it has widened and washed out an area one hundred and fifty miles long, and fifty miles wide, constituting the rich and fertile Valley of North Alabama. In the centre of this valley the river has worked for itself a channel in the limestone, generally only wide enough to contain the water of the river itself, leaving no flat margin nor muddy swamp to create malaria and disease. This is a peculiarity of all the waters that traverse the elongated valleys running parallel to the Alleghanies, from New York to Alabama. They have no swamp or alluvial formations, and their valleys are elevated tablelands, with a top soil of red or black loam, on a foundation of limestone. The most southerly extension of the Valley of Virginia, the county of Talladega in the State of Alabama, shows a record for health, and a freedom from malarial disease, equal to any county in this valley in Virginia, Pennsylvania, or New York. The Valley of North Alabama is a counterpart, in its general characteristics, of the Valley of Virginia and its extensions to New York and Alabama. It produces more of agricultural values, however, when properly cultivated and tilled, as it was before the war, as can be seen from the census reports, than any part of this other great valley, except, perhaps, the portion lying in Alabama. But in the matter of comparative agricultural capabilities of the soils of Alabama, with other sections of our country, we will refer to the facts, and let them determine this

question. I insert here a table, compiled from the Federal census of 1860, giving the products of the soil of the counties in the Valley of North Alabama, and of the counties along the line of the South & North Alabama Rail Road, and of the counties at the southern terminus of the road, composing and lying in the prairie or cotton belt of the State. I insert the county of Augusta, in the Valley of Virginia, in the State of Virginia, the richest county in that State in farm valuation. This county is an exponent of the productions of this great valley, in its largest and most prosperous estate. I insert, also, the county of Talladega, the most southerly extension of this valley in the State of Alabama. This valley is so similar, in all its characteristic features from New York to Alabama, to our Valley of North Alabama, and is so well known throughout the United States, that a single spot, taken any where in this valley and compared with any section of Alabama similar and like in its characteristic features, will give a better idea of that section than any comparison I can make. I insert the county of Talladega, Alabama, the most southerly extension of this valley, simply for the purpose of demonstrating that soils of the same character, and kind, produced more money in Alabama, than they did in virginia or New York. I place in this table the counties in which are situated the capitals of the great agricultural States of Ohio, Indiana and Illinois, and also one county in each of these States, the richest in farm valuation and in the productions of their soils—six counties in all.

PRODUCTS OF SECTIONS AND COUNTIES IN ALABAMA AND OTHER STATES.

Sections and Counties in the State of Alabama.	Population.	Value of Farms.	Value of Live Stock.	Number of Hogs.	Bushels of Wheat.	Bushels Rye.	Bushels of Corn.	Pounds of Tobacco.	Bushels Oats.	Bales Cotton.	Bushels Peas and Beans.
Black Belt	366,609	$ 91,102,185	$18,205,966	654,787	170,141	19,592	14,374,052	5,081	237,356	644,911	616,808
Montgomery	35,904	9,883,964	1,748,273	63,134	6,317	1,262	1,586,481	476	33,476	58,880	32,206
Autauga	16,737	2,901,285	778,906	27,483	10,105	2,795	559,520	1,052	7,034	17,329	60,608
Shelby	12,618	1,401,230	442,289	23,785	37,448	1,283	376,660	2,574	11,854	6,463	15,142
Jefferson	11,746	1,219,865	552,095	23,561	51,032	267	586,785	9,192	2,787	4,940	26,405
Walker	7,980	613,820	292,831	17,325	12,085	695	249,274	6,631	1,051	2,766	16,493
Blount	10,865	832,500	305,025	15,949	35,286	305	294,702	21,990	7,184	1,071	13,565
Winston	3,576	231,261	111,796	6,031	3,527	709	88,808	7,629	483	352	7,954
Morgan	11,335	1,441,974	546,110	25,628	16,240	1,422	447,857	7,145	6,855	6,326	14,892
Madison	26,451	6,078,806	1,107,685	49,723	43,613	7,746	988,396	6,711	44,587	22,119	33,595
Tennessee Valley	132,864	27,254,207	6,180,232	240,688	205,388	26,044	5,606,436	42,783	136,281	93,280	125,612
Talladega	23,520	3,111,205	929,590	58,832	81,559	2,465	755,173	2,578	64,082	18,243	27,068
Counties in other States.											
Marion, Indiana	39,855	10,923,429	975,461	47,052	331,165	2,106	1,545,690	6,380	110,621	.....	2,770
Sangamon, Illinois	32,274	11,866,486	1,926,254	62,917	303,747	11,695	3,599,405	3,700	180,025	.....	466
Franklin, Ohio	50,361	13,123,092	1,442,879	49,589	169,007	4,185	2,068,861	3,410	183,841	.....	1,089
Wayne, Indiana	29,558	11,583,148	1,145,864	49,877	344,131	841	1,387,262	181,985	202,194	.....	336
St. Clair, Illinois	37,694	10,721,968	1,242,462	37,791	885,847	240	1,671,763	40	245,409	60	816
Butler, Ohio	35,840	19,049,044	1,333,592	51,640	682,823	4,246	2,396,323	833,367	216,064	.....	733
Augusta County, Virginia	27,749	10,997,283	1,287,615	31,033	307,402	57,479	752,530	40,727	191,379	.....	2,642

PRODUCTS, &c.—Continued..

Sections or Counties in the State of Alabama.	Bushels of Potatoes.	Bushels of Buckwheat & Barley.	Pounds of Sugar.	Gal. Molasses	Pounds Wool	Pounds of Honey.	Pounds of Butter.	Val. of Animals slaughtered.	Tons Hay.	Val. of Manufactures.	Val. of Farm Products.	Per Capita Val. of Farm Products.
Black Belt	2,567,582	7,067	.....	18,685	197,782	413,581	1,818,643	$3,895,988	29,289	$230,890	$34,569,778	$94 19
Montgomery	235,233	1,209	.....	80	18,448	10,662	163,798	336,915	469	9,997	3,264,170	90 67
Autauga	133,802	492	.....	.....	12,289	23,799	109,239	190,636	.....	47,784	1,063,610	62 59
Shelby	67,655	106	.....	80	8,258	13,000	116,947	137,582	1,962	36,293	531,005	40 89
Jefferson	60,158	.....	.....	.....	12,691	20,413	147,447	130,861	.....	51,155	576,658	48 00
Walker	40,862	41	.....	1,480	7,889	12,142	46,515	74,122	1	32,983	270,629	35 00
Blount	46,929	169	.....	4,06	7,454	8,000	102,490	79,759	11	30,280	206,867	18 72
Winston	18,375	22	.....	5,540	2,836	3,048	16,511	33,678	.....	14,970	74,722	20 75
Morgan	46,616	2,753	.....	5,418	13,695	13,246	100,199	131,271	1,001	25,923	536,835	48 80
Madison	90,754	.....	.....	6,448	16,725	22,341	170,114	222,761	5,641	63,305	1,520,685	57 40
Tennessee Valley	443,924	3,060	64,000	32,336	126,630	126,732	963,442	1,457,941	15,187	353,651	7,096,757	53 30
Talladega	101,927	3,383	.....	522	12,660	7,824	187,921	243,906	33	23,327	1,258,168	53 04
Counties in other States.												
Marion, Indiana	154,320	8,828	11,737	17,450	28,083	16,791	361,140	1,531,894	9,157	6,449	887,061	28 77
Sangamon, Illinois	73,644	15,716	810	380	139,117	30,722	337,013	579,160	26,278	5,115	1,571,163	49 00
Franklin, Ohio	211,333	34,984	14,270	18,321	64,492	17,859	653,048	218,475	15,502	9,325	991,100	33 00
Wayne, Indiana	62,910	22,020	23,760	34,181	36,095	14,471	378,858	165,132	9,204	6,487	867,549	28 09
St Clair, Illinois	170,518	114,243	.....	.....	9,071	7,872	211,239	225,445	11,593	21,103	1,521,896	40 00
Butler, Ohio	97,734	343,516	11,478	15,024	9,389	3,965	557,344	318,274	7,377	3,055	1,671,132	46 05
Augusta County, Virginia	44,127	7,507	585	6,758	35,810	17,716	451,305	254,853	21,687	16,024	944,619	34 00

I place in this table of comparisons the richest and most noted counties in these three States, because, in the matter of farm productions, the States of Ohio, Indiana and Illinois equalled, in 1860, *all th efree States from Maine to Kansas*, as can be seen from the following table:

PRODUCTS, GIVEN IN BUSHELS.

STATES.	Wheat.	Rye.	Oats.	Barley.	Buckwheat.	Peas and Beans.	Indian Corn.
Connecticut	52,401	618,702	1,522,218	20,813	309,107	25,864	2,059,835
Iowa	8,449,403	183,022	5,887,645	467,103	215,705	41,081	42,410,686
Kansas	194,173	3,833	88,325	4,716	41,575	9,827	6,150,727
Maine	233,876	123,287	2,988,939	802,108	239,519	246,915	1,546,071
Massachusetts	119,783	388,085	1,180,075	134,891	123,202	45,246	2,157,063
Michigan	8,336,368	514,120	4,036,980	307,868	529,916	165,128	12,444,676
Minnesota	2,186,993	121,411	2,176,002	109,668	28,052	18,988	2,941,952
New Hampshire	238,965	128,247	1,329,233	121,103	89,996	79,451	1,414,628
New Jersey	1,763,218	1,439,497	4,539,132	24,915	877,386	27,674	9,723,336
New York	8,681,105	4,786,905	35,175,134	4,186,668	5,126,307	1,609,339	20,061,049
Pennsylvania	13,042,165	5,474,788	27,387,147	530,714	5,572,024	123,090	28,196,821
Rhode Island	1,131	28,259	244,453	40,993	3,573	7,698	461,497
Vermont	437,037	139,271	3,630,267	79,211	225,415	70,654	1,525,411
Wisconsin	15,657,458	888,544	11,059,260	707,307	38,987	99,484	7,517,300
Totals	59,394,076	14,837,980	101,244,810	7,538,078	13,420,764	2,570,442	138,611,052
Indiana	16,848,267	463,495	5,317,831	382,245	396,989	79,902	71,588,919
Illinois	23,837,023	951,281	15,220,029	1,036,338	324,117	108,028	115,174,777
Ohio	15,119,047	683,686	15,409,234	1,663,868	2,370,650	102,511	73,543,190
Totals	55,804,337	2,098,462	35,947,094	3,082,451	3,091,756	290,441	260,306,886

In comparing Alabama, and counties in Alabama, with these States, or the richest counties in these States, a parallel is instituted that, if successfully maintained, can not be set aside or broken anywhere in this country, or perhaps in the world. I go back to 1860, for the purpose of comparing the soils of Alabama with those of the other States of our Union ; simply because the soils of the South, since then, have not been properly cultivated or tilled. It is impossible to arrive at the character of our soils for productions in any other way, as the negro labor here, as will hereafter be shown, is now unproductive and unreliable. We will examine first the county of Augusta, in the Valley of Virginia, and compare it with the county of Talladega, in the State of Alabama. In population, Augusta 27,749, and Talladega 23,520. Acreage of Augusta cultivated 224,644, and Talladega 139,892. Value of farms $10,997,286 in the county of Augusta, and only $3,111,205 in Talladega. The live stock of Augusta was valued at $1,287,610, that of Talladega $929,590. Augusta had 31,033 hogs, Talladega had 38,832. Augusta raised 307,402 bushels of wheat, Talladega only 81,559. Corn, 752,530 for Augusta, and 755,103 for Talladega. Oats, 191,279, and 64,082. Potatoes, 44,129, and 101,977. Meat crop of Augusta $254,853, Talladega $243,906. It will be noted that, situated in the same valley, nearly seven hundred miles apart, these two counties are very nearly equal in their productions, except in wheat and oats. In Indian corn, the Alabama county is a few thousand bushels ahead. In meat product only $11,000 behind. In potatoes, the Alabama county is ahead. In hay, the Virginia county is largely ahead, producing 21,687 tons, and Talladega only 33 tons. Here I will remark that the fodder crop taken care of and cured, in the South, and used everywhere as forage, for horses and mules, is not tabulated, or recorded in the census of 1860. The county of Talladega produced over 7,000 tons of fodder. Fodder, as cured in the South, answers all the uses and purposes of hay, and but little of it was saved anywhere in the North. As the census has omitted it, I will make no further mention here of this important Southern product. The cotton crop of Talladega, 18,243 bales, was worth $729,720, or more than three-fourths of the entire crop

values of the county of Augusta, Virginia, valued at $944,619. The total valuation of Talladega products was $1,258,168. The acres cultivated in Virginia 224,644, in Alabama 139,892. The Alabama county produces well all the other products of Virginia, besides a cotton crop, which the Virginian could not raise. The cultivation of other crops, except wheat, interferes but little with the cultivation of cotton. The rocks, the soil, the water, are identical; but the climate and productions are different. Here lies the secret of our agricultural success; and I make this comparison here simply for the purpose of exhibiting this fact. Both were cultivated largely with slave labor. We will now take up the county of Madison, in the Valley of North Alabama, and compare it with counties in Ohio, Indiana and Illinois, in 1860. We will compare it first with the county of Sangamon, the capital, and richest agricultural county in Illinois.

The farms of Sangamon were valued at $11,886,486, of Madison $6,078,806, or about half that of the Illinois county. Sangamon had 62,917 hogs, Madison 49,723. Wheat, Sangamon 303,747 bushels. Madison 43,613 bushels. Sangamon raised nearly four times as much corn as Madison; but corn was the crop of the county of Sangamon, and cotton was the crop of the county of Madison. The corn crop of Madison was 37½ bushels for each soul, that of Ohio 31¼, that of Indiana 47 3-5, that of Illinois 45⅔. The meat crop of Madison was $8 33 to each person, of Ohio $6 29, of Indiana $7 27, and of Illinois $8 84. The cattle and hog crop raised by the South, before the war, is a matter that the new millions that now inhabit our country, can not understand. They deny roundly and flatly, the fact, well known before the war, that Georgia, Alabama and Mississippi, produced more meat, to the man, than did Ohio, Indiana, or Illinois. The figures of the census prove this, and it is well known that no farmer in Alabama, before the war, ever bought meat, bread or anything, except iron, sugar, coffee and salt. The stock cattle of the South, in 1860, counting Delaware and Maryland with the Northern States, was 8,078,072. In the North and West, from Maine to Kansas, only 5,596,766. Swine, Southern States, 20,238,887. All the other States and Territories, including Maryland, Delaware and the Pacific States, had only

13,273,980 head of swine. I place these extracts here, from the Federal census of 1860, for the information of people who knew nothing of the South before the war, and can know nothing now, except from books and results of the agricultural capabilities of the soils of the South then; and who judge the capabilities of our soils by what they see now. Since I have been writing my book on Alabama, I have met no man from the States of the North, who has seen our agriculture, only since the war, who will admit, or can be made to believe, that the cotton States, Georgia, Alabama and Mississippi, fed themselves before the war, and raised more of agricultural values than did the States of Ohio, Indiana and Illinois. Such was the fact; and though these States have twenty years the start, with good government, and a steady reliance on ourselves, we will stand even with them, again, in less than twenty years. Madison county, Alabama, produced 90,754 bushels of potatoes. Sangamon, Illinois, only 73,644 bushels. Of peas and beans, an important food crop of the South, and everywhere, where men do hard labor, Sangamon produced only 466 bushels, while Madison produced 33,595 bushels. The acres cultivated in the Illinois county 314,271, in Madison 214,509. The *per capita* productions of the soil were—of Sangamon $49 00, of Madison $57 70. If the fodder crop of Madison, amounting to 9,883 tons, was counted in this table, the difference in her favor would be greater. The total value of the crop products of Sangamon was $1,571,163, of Madison $1,520,685. It was the cotton product of the Alabama county, as can be seen from these tables, that made this difference. The table is before the reader, and he can examine it further, if he wishes. Would that the agricultural actualities of the soils of Alabama, were tabulated and indelibly engraved on the intellects and souls of the people of Alabama, and of the new people everywhere, who inhabit our country now. In my work on Alabama, I compare our county of Madison, in the Valley of North Alabama, with Wayne, the richest county in Indiana, in 1860. The comparison is contained in the table above given, in figures. I am a poor hand to convey ideas in words, and I only put words in this paper, because I know people will not read figures alone. The county of Wayne was then,

and is now, the richest agricultural county in Indiana. The county of Madison was the richest in aggregate productions in the Valley of North Alabama—the population was larger, and more acres were cultivated in this county. The products per cultivated acre in Madison, however, was $7 13, and of the whole Valley was $7 18. In the table prepared for my work on Alabama, in which a measurement is made of the comparative value of the soils of the counties Alabama, as between themselves, Madison in her *per capita* valuation of products of farming is $62 93, and of the whole Valley $63 00; agreeing very nearly with the measurement per cultivated acre. To save space, I will compare Marion, the county in which Indianapolis, the capital of Indiana, is situated, and Wayne, the richest in the value of its farms, in the State, with Madison. In farm valuation the Indiana counties nearly double Madison, being $10,923,429 and $11,583,148, and $6,078,806 for Madison. In live stock they are almost equal. In hogs they are about equal. Wheat and corn, the Indiana counties are ahead, but very nearly equal, and even themselves in their products. In peas and beans, and potatoes—things raised from the soil, and for the purpose of feeding *men only*, the Alabama county is ahead. It is a remarkable fact, that in peas and beans, potatoes, turnips, and small crops of this kind, raised only to *feed people*, the South always exceeded the West and North. Alabama raised in 1860, more potatoes than the State of Illinois, or 5,931,563, and Illinois 5,846,544. Excepting New York, she raised more peas and beans than all the free States from Maine to Kansas. These things will all appear hereafter, in a table by themselves, and I will use no more words on this subject. In the aggregate value of the products of the soils, the two Indiana counties, Marion and Wayne, were respectively $887,061 and $867,541. Madison $1,529,685, or nearly equal to the combined value of the farm products of two of the richest agricultural counties in the State of Indiana.

We will start now on the line of the road at the northern boundary of this State, and examine and compare the characteristics and productions of the sections and counties as they come—

First comes the county of Limestone, lying also in the Val-

ley of North Alabama. I will measure this county, also, by figures and results. The population of this county, as can be seen from the tables, is less than three-fifths that of Madison, whilst the aggregate value of her products was $976,656, or nearly two-thirds that of Madison. The *per capita* productions of the county of Limestone was $63 08 in 1860, or more than double that of the counties of Marion and Wayne, in the State of Indiana. An allowance should be made, in the tables of population, to the county of Marion, for the non-producers in the city of Indianapolis. I have deducted the entire population of this city, as non-producers, and do so for all the large cities in the West; but I have made no deduction, anywhere, for any city of non-producers, in the South. The fact is so plain, and so patent, that the soils of Alabama far exceeded those of the West and North, in the production of agricultural values, when our soils were properly cultivated and tilled, that there is but little need of refinement in argument to convince any mind, which can or will be convinced, by reasoning or facts. The per centage of total population engaged in agriculture, or going into the fields, in the different States of the Union in 1860, is published in a table hereafter. Alabama 60, Georgia $57\frac{1}{2}$, Mississippi $61\frac{1}{2}$, Illinois $50\frac{2}{3}$, Indiana 59, and Ohio $46\frac{1}{2}$ per cent. It is very evident, that agriculture was the business of these States, all alike, at that time. More of the people of Ohio were engaged in other pursuits in the three Western States, and more of the people in Georgia in the three Southern States named. The army of non-producers, composed of merchants, lawyers, transporters, and other professions, mechanics, and others, always incident and necessary to a healthy condition and working of agriculture in any civilized country on earth, were found in each of these States, organized in numbers sufficient only to carry on the business *outside of the fields*, and amounted to one-third of the population in each and all of these States. The remainder were engaged in pursuits not strictly agricultural, or incident to agriculture. In Ohio 20 per cent. were thus engaged, in Indiana $7\frac{2}{3}$, in Illinois 16, in Georgia $9\frac{1}{2}$, in Alabama $6\frac{2}{3}$, in Mississippi, $3\frac{1}{2}$. I make this explanation, thus early, and in advance of the tables on this subject, that the reader may compare,

in his own mind, the relative value of the *per capita* measurements I am making in counties in these States. A *per capita* measurement of agricultural values, measured by total of population, as far as Illinois and Ohio are concerned, in comparison with Alabama, should have a per centage added, equal to the greater proportion of people engaged in other pursuits than agriculture, or things incident thereto. It amounted in Illinois to $9\frac{1}{2}$ per cent., in Ohio to $13\frac{1}{3}$ per cent., to be added to their *per capita* value of total population, when compared with Alabama.

By reference to the table, it will be seen that this county produced, before the war, everything requisite and needful to the comfort and sustenance of man. She raised $38\frac{1}{4}$ bushels of corn, and 11.34 dollars worth of meat. The *per capita* corn product of the Western States, including Kentucky and Missouri, in 1860, was 45.56 bushels. The corn crop of the West is its principal crop, and here it is only secondary, and raised only for consumption at home, and still this county of Limestone raised nearly as many bushels of corn to each head or soul, as did the granary, as it is called, of this Continent; nearly double the amount of meat to the head raised in Ohio, besides planting and raising $604,600 worth of cotton, in gold. This gold crop was all profit, before the war, in the county of Limestone. The farmers here raised everything they needed for support on their farms, and this gold crop was added, each year, to the permanent wealth, the comfort, the luxury, the refinement of the county; and it was well expended; for no people, in any county, in any State in the Union, enjoyed more of the comforts of life, than did the people of this county of Alabama. I will not use the stereotyped phrase, set up and printed in every land advertising sheet in the country—"Healthy, well watered, and fertile, producing, etc., etc., etc., all the productions, etc., etc., etc., of value," in reference to this county, or any county of the State of Alabama, and especially the counties along and contiguous to the South & North Alabama Rail Road. The health and comfort of any region that has been long inhabited by man, may be measured by the progress of that region in population, prosperity and wealth. The progress of Ala-

bama, from the date of her first settlement, down to the date when she blindly and unfortunately jumped into our late civil war, was equalled only, in our country, by the State of Illinois. We will now leave the county of Limestone, and cross the Tennessee river—next to the Coosa in Alabama, the most beautiful river in the world. The town of Decatur, in the county of Morgan, is the northern terminus of the South & North Alabama Rail Road. This county also lies in the Valley of North Alabama, and its agricultural capabilities are fairly and well measured in the tables heretofore given. By reference to the tables, it will be seen that the live stock, meat and grain products of this county were greater, in proportion to population, than the counties of Madison and Limestone, and that the cotton product was less. This came from two causes—First, the want of transportation, before the completion of the Memphis & Charleston Rail Road, in 1857; Second, whilst the farmers in the cotton belt of Mississippi and Alabama, raised all the meat they wanted for their own use, still they did not raise enough for the merchants and other non-producers in the cities and towns. The rich valleys and coves in the counties south of the Tennessee river raised corn and hogs as easily, and as well, as they did in Tennessee, and carried on the business of stock and hog driving to supply the deficiency as stated above, in the cities and towns of the black or cotton belt. The county of Morgan was largely engaged in this business, even up to the beginning of the war, and made but little cotton, which is ever, and always, the best paying crop in Alabama, *when people make their food crops at home.* The people of this county lived well, and had all the comforts of life, before the war. We have measured the capabilities of the soils of the Valley of North Alabama, by actual results, and by figures; the only method of measuring the value of the soils of the South at this time. There is no agriculture in the South at this time, to measure the character of her soil by, and it will continue to grow worse, until white labor is brought from elsewhere.

We will leave now this interesting valley of North Alabama, with its array of splendid facts and crop results to point to, and enter upon the description of the mountain region of Alabama, as it is called, extending from the valley of

North Alabama to within twelve miles of the city of Montgomery. There are no mountains in Alabama where it is crossed by the South and North Alabama Rail Road. There are ridges and lines here that mark the places in the strata occupied by the mountains of Tennessee, Virginia and Pennsylvania. The rocks and minerals are all here, however, precisely as they occur in the States above mentioned. Commencing at the foot of the Blue Ridge mountains, twelve miles from Montgomery, the country rises gradually from an elevation of one hundred and seventy-five feet above tide water, to the summit of this mountain at Jemison, to an elevation of seven hundred and six feet. This mountain divides here, as it does everywhere from New York to Alabama, the freestone and limestone formation; and is also the southeastern boundary line, as elsewhere, of the minerals of value, of the Appalachian chain of mountains. We cross over from here to the top of the Sand Mountain, the northwestern boundary of the coal measures of Alabama, and the southern boundary of the valley of North Alabama, a succession of ridges and elongated valleys, rising nowhere except at the summit of the Sand Mountain, more than 700 feet above the sea level. Before the completion of the Selma, Rome and Dalton rail road, in 1856, or only a few years before the war, this mountain region of Alabama, as it is called, covering an area of nearly 15,000 square miles, or nearly one third of our State, had, practically, no agricultural market at all. Taking Birmingham as a centre, it was sixty miles to Tuskaloosa, an indifferent river town; one hundred and twenty miles to Tuscumbia, Decatur and Guntersville, on the Tennessee river, also bad markets; seventy miles to Gadsden, on the Coosa, another very bad market town, and one hundred and twenty miles to Montgomery and Selma, on the Alabama river. It is evident, without argument, that a region so situated, could make but little headway in agriculture. The figures given in the census of 1860, may not measure fairly their agricultural capabilities. But I will give them just as they are. This region was cultivated all over with results, as will be seen in the tables above given. We will resume our description with the counties of Blount, Walker and Winston, the first counties on the line of the rail road south of the valley of North

Alabama. Winston, as well as the greater portion of Blount county, lies on the plateau, or top, of Sand Mountain. The *per capita* productions of these two counties was small before the war, as compared with the great and rich counties of Ohio, Indiana and Illinois, and the splendid agriculture of the other counties in the State of Alabama. Only two other counties in the State show a record as poor as Winston and Blount. But we are not comparing the agriculture of counties in Alabama with themselves, as it is well known that the agriculture here was the poorest in Alabama before the war, with the exceptions above noted. But if the reader will only take the trouble to examine the value of the crop products of counties in the States of the West, last above referred to, he will find that many counties there produced less of agricultural values, to the head, than did the counties of Winston and Blount, producing respectively, as can be seen by reference to table No. 2, of strictly crop values $20 25 and $18 22 per head. The eastern and southeastern portions of Blount county consist mainly of Blountsville and Murphey's Valleys. Limestone constitutes the agricultural soils of these valleys. Elevated here almost to a level with the surrounding mountains, these two valleys, with their rich agricultural soils, the bright sparkling waters of the Warrior river, rising in and running through them, a crisp, clear and healthy atmosphere floating over them always, are fitly and most properly styled the Switzerland of Alabama. The crop products here were greater than in other portions of the county, but were confined mainly to meat and breadstuffs, articles giving plenty and comfort, but little money in this, or any other section of Alabama. Walker county lies south of Winston, and southwestwardly from Blount county. Its agricultural features are more varied than those of Blount and Winston, and include cotton, the money staple of Alabama. The value of this product to the agriculture of Alabama cannot be more readily demonstrated anywhere in the State, than by an examination and comparison in table No. 2, of the crop values of the three counties, Winston, Walker and Blount, all lying in what is called the mountain region of Alabama. It will be seen that the *per capita* value of the crop products of Walker county is $35 00, and of Winston and Blount only $20 75 and

$18 22, This difference arises mainly from the fact that the aggregate cotton crop of Walker, with a little over half the population of the two counties of Blount and Winston, was *double* the combined cotton crop of these last named two counties. So it is always, and ever will be in Alabama, cotton is the most valuable crop produced on the soil of Alabama. Breadstuffs must be produced in amount sufficient to feed the agriculturist in Alabama, but if he wishes to make money he must follow the indications of nature, and cultivate *all* the cotton he can consistently with the above requisition for food. The soil of these counties, as of all the counties in the State, produces cotton well. It is a plant of peculiar value, the successful cultivation of which is confined by our Maker to the soils of the South, and any system of agriculture in Alabama that discards cotton will, and ought to, fail. Lying, as these counties do, on the elevated plateau, or mountain plain of Alabama, they are healthy ; water is excellent everywhere.

There is a feature of this section, the discussion of which here will somewhat mar the order of my book. I allude to the German colony of Cullman, but as I have already taken the trouble to examine personally into the condition and prospects of this colony, I will consider it right here.

A contract was entered into by the rail road company with John G. Cullman, Esq., in the fall of 1872, for the sale and settlement of the alternate sections of land granted by Congress to aid in the construction of this rail road, and included in the area lying around the present town of Cullman, of 20 by 30 miles. Mr. Cullman selected this locality on account of the peculiarity of climate and soil, and the almost entire absence of old settlers and the consequent availability of the entire body of even or reserved sections of land for the purpose of entry and settlement under the homestead laws of the United States. He had here under his influence and disposal over half a million acres of unoccupied lands, not rich, as the records in this book will show, when compared with other soils in Alabama, but with peculiarities of climate, soil and surroundings exactly suited, as I find now, for the establishment of a colony of German laboring people.

The soil of this mountain plateau, about one hundred miles

long from east to west and thirty miles wide from north to south, comes from and lies on the lower strata of the coal formations of this State, and is peculiar to this section and differs in its constituent elements from any of the other soils in the State. The strata or rocks of the upper coal measures produce the top soils in the remainder of the coal regions of Alabama. My knowledge of the analyses and natures of soils is not sufficient to enable me to point out wherein these soils differ. But there is a difference, and the difference depends upon the character of the exact strata that happens, in any given locality, to be on top, or to constitute the surface of the earth. Mr. Cullman and those in this colony imagine that they have here soils peculiarly and specially adapted to grape culture. In my travels through this section, before and since the war, I found the old settlers scattered here and there raising everywhere good crops of corn, wheat and cotton. To an indifferent observer the soils all looked alike, but to the practiced eye of these old farmers there was a difference, depending, as I have since found out, on the geological conditions above stated. The difference is but a shade over this whole area, it is true, and though it may have no influence on grape, or cotton, or fruit culture—and I think it will not—it will always appear in the cultivation of the cereals. In my recent visit to this colony, made entirely with a view of obtaining exact information as to its status and prospects, I found at the town of Cullman a population, as stated, of about eight hundred souls, and in the colony about three thousand. Their number was somewhat of a surprise to me, but there was a matter underlying all this, and that was the material progress of those already here. I first examined the town itself, and found a flouring and corn mill in successful operation and doing a good business. I next visited a furniture manufactory, and found these people manufacturing furniture and selling it at Cincinnati prices. When I asked the price of this, that, and the other article, all new and apparently as good as any ever brought to Montgomery for sale, I was surprised at the low prices, and my mind involuntarily went to the auction sales of second-hand furniture at Montgomery, for a comparison of prices. I found the workmen themselves were all stockholders, and this explained the reason of these

low prices. The tannery and shoe factory I did not visit, but am satisfied that the owner (with a hard name) is doing well. I next examined a new three-story brick hotel being built by Mr. Fromwalt. In the basement is the—to these people—inevitable lager beer cellar. In this matter of lager beer, a person would feel like he was in St. Louis or Cincinnati. Their merchants were doing a thrifty and safe business, not only with their own people, but with the natives scattered all over the plateau or mountain plain. One thing I did not see, and that was any idlers, loungers, or loafers, male or female, large or small, young or old.

The things described above can be built and seen any where, but they must all stand on something outside of the city or town.

I next visited the country, and though I may be wrong, I will give here my exact opinion on this, the underlying subject of this colony. When this country was all in the woods, I knew every hill, every branch, and every plain, as familiarly and well as I do the streets and the houses in the city of Montgomery. But the changed appearance of every thing here now made me feel as if I had never seen the country before. It had precisely the same appearance (save that it was covered over with timber, grape-vines and undergrowth) as the rolling prairies of Nebraska and Kansas. The houses of the German settlers, one and two story, double hewed log, with their little gardens and parterres, also looked strange. I heard a woman directing her children in the German language to run the hogs out of the field. The intonations of her voice, and the ejaculations in a foreign and unknown tongue, made me feel that I was a long way from home. I went into, through, and across their fields, and I found here the familiar Indian corn stalk, but as a rule it was planted so thick that the crop was a failure. That this was not the fault of the climate or soil is very evident, from the fact that adjoining fields cultivated by Alabamians had splendid crops of corn. The other and small crops cultivated by the Germans were more varied than those cultivated by the old settlers. But in those cultivated by both, the Alabamians were ahead. The German mind is running here on grape culture. From their own statements and accounts, and from the exhibits

made to me, they will succeed here in this business. They will succeed perhaps next year in corn product, as this industrious people will certainly learn from the old farmers here how to cultivate this soil. In one or two years they will learn to invest their surplus labor in cotton, the normal money staple of Alabama. Such an exhibition of patient and persevering industry I have never before witnessed in my varied and checkered life.

This colony will succed here; but in the cultivation of the staples heretofore known in Alabama, they must learn from the people who have been born and raised on this soil. The soil here is not rich, when compared with the soils of eastern Kansas, Iowa or Illinois. But these soils are already occupied now up to, and even beyond the region of no rain fall in the west, as will hereafter be seen. These industrious people will, by persevering labor, supply any deficiency in fertility in these soils, lying as they do on a subsoil every where retentive and strong. But no power of man can supply the deficiency of rain-fall in the new and now unsettled west. The rain-fall in Alabama is 59.58 inches; in the new west only 14.1 inches. These matters are hereafter fully discussed.

JEFFERSON COUNTY.

We come next to the county of Jefferson, the county in which Birmingham is situated. The *per capita* value of merely soil productions of this county nearly equalled those of the Tennessee Valley, and exceeded, largely, the richest counties in Indiana and Ohio, as can be seen from the tables. Jefferson and Shelby, the counties lying south on the South & North Alabama Rail Road, are the mineral counties of the State. All the coal of any value, mined in the State at present, is taken from these two counties, and the largest and most valuable deposits of iron ores, Red and Brown Hematite, and Black Band, are also found in these two counties. Their soils, identical with those of Pennsylvania and Virginia in the bituminous coal regions, are far from being bare of agricultural value, as we will now see. It would, perhaps, not be fair to compare this county with the great and rich

counties of the West, as in 1860 it had no rail road or convenient market towns; but as I have laid down the rule to measure our soil value by their products in 1860, I will not depart from it here. Men living here now, from all parts of the North, and here only since the war, and seeing the paucity of the agriculture of this once glorious little county, meet one smilingly, pleasantly, but unbelievingly, when I tell them of what our agriculture once was, as compared with that of the Western States. The agriculture of this county is scarcely one-half now, of what it was before the war. I will compare our county of Jefferson, in detail, (as her *per capita* soil products surpassed in value, that of the richest counties of Ohio and Indiana,) with Sangamon, the richest agricultural county in Illinois. The population of Sangamon, in 1860, was 32,274, of Jefferson 11,746, or one-third that of Sangamon. The value of live stock of Sangamon was $1,926,524, that of Jefferson $552,195, or one-third that of Sangamon. Sangamon had 62,917 hogs, Jefferson 23,561, or a little more than one-third as many. Sangamon produced of wheat 303,747, Jefferson 51,032, or one-sixth as much. Of corn, Sangamon raised 3,599,405 bushels, Jefferson 586,785. Peas and beans, Jefferson 26,405, Sangamon 466. Jefferson, potatoes 60,158, Sangamon 73,644. Honey, in Jefferson 20,413, Sangamon 30,722. Butter, in Jefferson 147,447, in Sangamon 337,013. Meat crop of Sangamon was $579,160, of Jefferson 130,861. In meat, corn and wheat, alone, of the above mentioned articles, the Alabama county fails to raise crops in proportion to her population. Her corn was more than an average for the States of Ohio, Indiana and Illinois, being 50 bushels for each soul, and the average for these States being only 48 1-6 bushels. Her meat crop was $11 09, and the average for these three States only $7 32, whilst her 4,940 bales of cotton (little bags of gold,) brought her *per capita* average to $48, or within one per cent., as can be seen from the tables of that of the great and rich county of Sangamon, Illinois.

The total value of agricultural products was—for Sangamon $1,571,163; for Jefferson $576,648. The population of Sangamon 32,274, of Jefferson 11,746. Valuation of farms of Sangamon $11,866,486, of Jefferson $1,219,863. Acres culti-

vated in Sangamon 314,271, in Jefferson 75,125. Here in Alabama, land worth only $1,219,263, produced more than one-third of the agricultural values grown on land valued in Illinois at ten times this amount; or three dollars in land, in Jefferson county, Alabama, produced as much money as ten dollars in land in Illinois, and if the reader will take the trouble to examine the census tables for 1860, he will find that, as a rule, land in Alabama produced three times the amount of agricultural values, according to valuation, that lands did in the West. There is this difference in farming at the West, and at the South. The surplus labor of the farmer at the South, over and above a support, was converted into cotton, which was gold always on the spot. The farmer in Jefferson county always made a support on his farm, before the war, and there was no necessity for him to go junketing, or peddling the products of his surplus labor, to get gold. His banker was, and always is, in the cotton field at home; and never failed to pay gold on demand. When he plants his food crops, he plants at the same time a little seed of gold, and in due time, and with care, it has grown into a great tree, and he has only to pluck the pods, and he has gold in his hands. There is no product of the West readily convertible into gold. Only two per cent. of their breadstuffs was exported in 1869, four in 1870, four in 1871, and four in 1872. The total exports of the census year 1860, were $335,894,385; only $27,590,298, or 7.4 per cent. of this amount, was breadstuff products of the West, and over $200,000,000, was cotton product of the South. From 1861, to 1872, the exports of breadstuffs was greater than before the war, and there was greater prosperity in the West. From 1864 to 1868, Russia exported to Great Britain, the only bread importing country in Europe, only $47,376,809, and the United States $127,047,126. From 1868 to 1872, Russia exported to Great Britain $117,967,022, and the United States only $116,862,380; and the fluctuations and uncertainties of the European market, created a panic in 1873; and since then, as stated in the report of the Windom Transportation Committee of the United States Senate, a bushel of corn in some parts of the West, is worth less than a bushel of coal; and is burned there for fuel. The argument is also made, in this Report, that Russia,

after supplying England, even threatens to supply breadstuffs to Portland, Boston and New York. Here then, is the difference between the surplus products of the South, and of the West. The one is always gold, on the spot; the other may be gold, *or it may rot on the ground.* This matter is fully discussed, in my forthcoming book, but as this is only a synopsis, I simply refer to it here.

I have compared our little county of Jefferson with Sangamon, the richest agricultural county in the richest agricultural State in the Union; and as has been seen heretofore, she stands equal to that county, not only in the per capita value of the products of the soil, but in every thing else produced on the farm. By an examination of the census, it will be seen that this county produced as many bushels of corn in 1860, in aggregate amount, as one-third of the counties in Illinois; and as much meat as fifty-five of the one hundred and two counties of that State. Such is not the fact now, I will admit; but it is comforting to our people to know that in times gone by, when properly cultivated and tilled, our soil products compared well with those of the great and rich States of the west. The county of Jefferson lies on the elevated plateau, which represents in Alabama the great mountains of Pennsylvania, Virginia and Tennessee. But the rough, rugged features of these mountains are all washed away here. The water, the rocks, and the soil, the ridges and the valleys are identical with those of the bituminous coal region of the States above mentioned. The products of her soil are compared and mathematically measured in the tables above given. I have but little data, on the climate and health of this county, other than that derived from observation.

I publish here a thermometrical table, taken at a farm-house near Newcastle in this county. The climatic record published from the State of Alabama is generally that of our cities, and always indicates a greater degree of heat than is found in the country and on the farms.

DAY.	TIME OF DAY.			
	A. M. Eight.	Noon. Twelve.	P. M. Four.	P. M. Ten.
July 22d	78	88	90	76
" 23d	76	88	90	78
" 24th	78	88	83	74
" 25th	69	72	74	70
" 26th	69	77	78	74
" 27th	80	85	88	78
" 28th	80	87	82	74
" 29th	76	88	90	74
" 30th	80	88	88.30	74
" 31st	70	81	82	76
August 1st	70	82	82	70
" 2d	71	80	74	70
" 3d	76	85	80	72
" 4th	72	79	76	74
" 5th	73	75	74	72
" 6th	74	82	84	74
" 7th	75	85	83	74
" 8th	77	84	84	73
" 9th	74	85	80	72
" 10th	75	84	82	72
" 11th	77	82	84	72
" 12th	76	85	88	72
" 13th	76	84	88	76
" 14th	76	83	88	73
" 15th	74	83.30	86	93
" 16th	76	88	89	..
" 17th	79	92	91	80
" 18th	79	88	91	79
" 19th	79	99	91	79
" 20th	83	89	91	79
" 21st	81	..	..	80
" 22d	80	83	85	76
" 23d	81	88	88	81
" 24th	81	90	90	80
" 25th	81	88	88	76
" 26th	76	86	84	72
" 27th	74	86	85	72
" 28th	76	90	90	78
" 29th	76	90	91	82
" 30th	81	90	..	..
" 31st	..	..	..	..

The above is the only record I have been able to obtain from a farm-house in this region, and I have taken this while writing this paper. The nights are always cool, and the days are never hot. There is not a swamp or stagnant pool of water in this whole county, or any other cause for sickness or malarial disease. Well watered, and lying on the summit of this elevated plateau, with a soil easily tilled, and capable of being cultivated every where, with a crop and climatic record as

given above, this county, as a home of the industrious, agricultural white man, has no superior in this or any other State. I will hereafter refer to the minerals of this county.

SHELBY COUNTY.

Shelby, the next county south of Jefferson, lies also on the elevated plateau, or so called mountain region of Alabama. Its topographical and agricultural features, its surface, its soil, and its rocks, are identical with those of Pennsylvania and the other States along the Alleghanies north. The Valley of Virginia terminates in this county, and is as rich here in Alabama in the production of crop values, as any where north. And so are the other elongated limestone valleys composing the principal agricultural features of this county. There are no swamps in this county or causes for malarial disease; and the climatic record is nearly the same as that of Jefferson. Its crop record is also nearly the same. In fact, these two counties may be considered as one. The next county, south, is the county of Baker; but as it has been formed from Shelby, Perry and Autauga, since the war, and does not appear in the census of 1860, I will take no notice of its county lines, or of the county by name. But will proceed with the discussion of the old county of Autauga, extending from near Jemison, on the summit of the Blue Ridge mountains, to the Alabama river, opposite to the city of Montgomery—a distance of nearly fifty miles along the railroad. We enter now, a country peculiar in itself, and differing from any country in Alabama. Though the old county Autauga, covered most of this region, I will first describe it as a section, without regard to county lines.

As heretofore stated, Jemison is situated on the top of the Blue Ridge mountains. At this point, the summit is low, and the mountain here is broken up and fast sinking away to a plain. About one mile south of Jemison is a high knob, the outlier and the southern end of this mountain. We will take the reader to the top of this knob and let him look on, while we describe one of the most interesting regions in Alabama. We will suppose, first, the heavy growth of timber to be cut

away, so that we can see over a vast region, as one can any where on the plains in the West. The beholder sees here that he is standing on the apex or summit of a great plain, sinking rapidly, regularly and smoothly away from its eastern, southern and western sides to the Coosa, Alabama and Cahaba rivers. At his feet rise three little streams or branches. The one, the Yellow Leaf, strikes boldly to the east, and cutting through the here broken up range of the Blue Ridge mountains, enters the Coosa river, above the great falls made by the forced passage of that river, through the east bounding mountain, from New York to Alabama, of the Valley of Virginia, extended into Alabama. On the west, Mahan's creek runs rapidly away to the Cahaba river, whilst the little streams running south, southeast and southwest, fall into the Coosa and Alabama rivers. The streams running east fall rapidly over rough, broken rocks, to the falls of the Coosa river; those running south-east, south and south-west, run smoothly over pebbly beds of white water-worn quartz; at first appearing like silver threads, and afterwards gaining in volume and bearing upon their bosoms the pearly white foam of the sparkling, clear waters from the last of the granite hills of the great Appalachian chain of mountains, they mingle their sweet, pure waters with the great river of Alabama. These streams, as they flow from the pores of these, here broken up and smoothly rounded freestone mountains, fall six hundred feet before they reach the Alabama, an average of nearly fifteen feet to the mile; yet there are no rapids, nor are there any shoals, but a strong, clear running current all the way down. To the south-west is seen the once beautiful city of Marion, on the borders of the great prairie-belt of Alabama. Immediately south is the commercial city of Selma, on the Alabama river, and also on the border of the great prairie-belt, and from our elevation, appearing just at our feet, though forty miles away; south-esat is the city of Montgomery—the capital city, and once the pride of Alabama. Whilst still further east, is heard the rough, rugged roar of the Coosa, falling through the mountains, to the city of Wetumpka. Beyond the cities of Marion, Selma and Montgomery, lies the great prairie-belt of Alabama, stretching across the whole State, upon which, before the war, was planted and

cultivated, the tree of gold, which enriched, then, our beloved Alabama.

Cut away, on the fourth day of July, 1860, the stately yellow pine and the splendid other growth which covered over this slowly sinking plain of forty miles square, and standing on this knob, near the exact center of our State, look, reader, upon a scene of agriculture such as the world never saw, and I fear will never see again. Never see again? Because the negro will not cultivate this soil, shall the balmy mountain air that gently floats along this mountain plain, fan no laboring Anglo-Saxon cheek? Shall the sweet, freestone water, that gushes from every pore of this long extended range, quench no Anglo-Saxon thirst? Are there no more Daniel Pratts, from the grand old Granite State, to touch these limpid streams and turn them into power? Look across the Alabama river, over the broad extended plains, where grew the fleecy tree of gold. The brightly sparkling, limpid waters of the region at our feet, are not running here. Cut down deep into the dark, black limestone soil, flow the sluggish creeks—and shallow seap wells furnished all the drinking water found in 1860 here. Houses, fences, farms and cultivated fields, in one connected chain, cover this region over, and wealth, boundless wealth, is seen every where.

There stood upon this limestone soil, in July of that census year, 14,374,052 bushels of Indian corn, 644,911 bales of cotton, and 654,787 hogs or head of swine. In July of the last census year, there was on this identical soil, only 6,279,843 bushels of Indian corn, 259,019 bales of cotton, and 165,396 hogs or head of swine. This country, now, without any fences to mark the boundary lines of the rich, half cultivated fields, is marked with poverty, want and ruin everywhere. The purely limpid waters, from beneath the mountains across the river, gush out, now, from deep artesian wells, any and everywhere, all over this broad, extended prairie plain; and there is no want of drinking water now. The miasmatic, disease producing clouds, hang only along the slow running, sluggish streams, as they were wont to do, in the decade before the last. The gentle showers come, and the vagrant weeds grow as rankly now as they did before the

war. What then is the matter here? Ah, that is the question we are now finding out!

I am warned by the accumulating pages I have already written, that space will not be allowed to describe these interesting regions further. But I will show by results what they once were, and how fertile are the soils, when properly cultivated and tilled, of the rounded Autauga plain and prairie belt of the State. In my more extended work, I will take this subject up, step by step, and describe this section well.

The county of Autauga, representing as well the plain of Autauga, as named by myself, produced in 1860 more of crop values, as can be seen from the tables, than any county passed over as yet, by the South & North Alabama Rail Road, except Limestone. Look along the columns for this county, and it will be seen that nothing is wanting for the enjoyment and comfort of man. There is no county in the West, or no county anywhere, with which to compare this county, in the peace, plenty and comfort enjoyed by this people before the war. The soil they cultivated, the water they drank, the air they breathed, and the comfort they enjoyed, taken all in all, is found no where else in our country. But that has all passed away now. Everything is gone, but the country, the air, and the water. I hope the reader will look along the columns in the tables, relating to this county, and spare me the space, and the trouble of comparing this county with any of the rich counties of the West. We will now cross over the Alabama river to the county of Montgomery, lying in the prairie belt; and though, as can be seen from the tables, its *per capita* did not average with the whole prairie belt, an analysis, and comparison of her crop values, shall answer for the productions of the whole. The products of the soil of the richest counties in the West, are too poor to compare this county with. Butler county, Ohio, shows the best record of any county in the West. We will see how our county of Montgomery compares with this great and rich county, in the production of crop values, in 1860. In population, Montgomery was 35,904, Butler 35,840; only 64 difference. Acres cultivated, Montgomery 257,602, Butler 207,964. Value of farms, Montgomery $9,883,964, Butler $19,049,044, or double that of Montgomery. Live stock, Montgomery $1,748,273,

Butler $1,333,592. Here the Alabama county is ahead. Hogs, Montgomery 63,134, Butler 51,640, meat crop or animals slaughtered, or sold for slaughter, Montgomery $336,915, Butler $318,274. It will be seen here, that the cattle and meat crop, in these two counties, with nearly equal population, is nearly the same, Montgomery leading the Ohio county, almost the same in each. Wheat, Montgomery raised but little, only 6,317 bushels; Butler 682,823. Wheat in the West, is what cotton is in the South, especially in the cotton belt of the South. Corn, Montgomery 1,586,480 bushels, Butler 2,396,323. These last figures will surprise nobody more than the new people of the West, who look upon Alabama, now, as only a cotton field for the grain of the West. But as heretofore stated, the county of Montgomery is not an average of the counties of this prairie belt; and the tale I am telling, now, will apply equally well any and everywhere, all over this ten thousand square miles. Of rye, oats, buckwheat, and barley, Montgomery produced but little, as corn serves a better purpose. Peas and beans, next to potatoes the most important small crop for food, Montgomery produced 32,206 bushels, Butler only 733 bushels. The matter of the paucity of the production of peas and beans in the West, surprises me more than anything else. Pork and beans is the western laborers strongest diet, just as it is for the laborer in the South. This important article of food is imported there from New York, and the States of the East. In potatoes, Montgomery is largely ahead, (there is evidently a mistake in this article, as it appears in the census, and I have taken the liberty of correcting this mistake), producing 235,233 bushels, Butler only 97,734 bushels. It is a matter of remark, that in all the small crops raised *to feed people*, the South was always ahead of the North. In the small crops raised *to feed animals*, the North was always ahead. This arises from the fact that it was necessary to feed cattle and hogs, and other animals, for a longer period, and to a greater extent, in the North and West, than in the South. It is also clear that the question of short feeding, was the reason that the South had so many more stock cattle and hogs before the war, than the States of the North and

West. The wool crop of Montgomery was 18,448 pounds, of Butler 9,389. There is evidently some unexplained reason for this short crop of wool, as I see that Franklin county, Ohio, raised 64,494 pounds, and Sangamon, Ill., 15,716 pounds. Montgomery raised 10,662 pounds of honey, and Butler 3,965. The crop of honey at the South was always larger than at the North. Montgomery raised 163,798 pounds of butter, and Butler 557,344 pounds. This measures correctly, and fairly, the average ratio in which this article was made, in Alabama and in the States of the West, before the war. We raised no butter, nor anything else in the South, to eat, that was for sale. Everything raised in a cotton region, was converted on the spot, into cotton—the only banker that never suspends specie payments, and always pays gold on demand for everything to eat raised on the farm. The recognition of the hay crop of the census, as a product of the soil, and not of the fodder crop, as taken and cured at the South, and used everywhere as a substitute for and in preference to hay, is an error that should be corrected. The fodder crop of Montgomery county was over 15,000 tons, and worth as much or more, here, than the same number of tons of hay in the West. Neither county did much in the way of manufactures, as can be seen from the table. We have said nothing, yet, of the cotton crop of Montgomery county, amounting to 58,880 bales. It has been seen that in everything to eat, or to feed people on, except wheat and corn, the county of Montgomery was not only equal to, but ahead of, Butler county, Ohio, the richest county in the West. Experience has shown the farmers of the South, since cotton has become an article of commerce, that to economize labor, and produce cotton cheapest, the cultivation of a corn crop is a necessary complement, to utilize the labor needed at times for working and picking promptly, and in the nick of time, a cotton crop. The labor engaged solely in the production of a cotton crop, could never pick it out; and much of the crop would be lost. Nor could the rotation in the times of planting and cultivation be so arranged as to employ the labor cultivating cotton alone, profitably, each and every day. Hence it has been found, and it was the practice everywhere where cotton was the principal crop, to cultivate corn, and enough only, to

raise all the cotton farmer's meat and bread. You may look through the crop records for the last fifty years, all over the South, and such has been the rule, everywhere. Even the State of Mississippi, the greatest cotton producing State before the war, with the Mississippi river, the cheapest carrier in the world, running down from the grain fields of the West, all along her coast, and near her cotton fields, produced, as can be seen from the table, heretofore given, (table No. 12,) 36 bushels of corn to the soul, or three-fourths of the *pro rata* amount raised in Ohio, Indiana and Illinois, and 9.88 dollars worth of meat to their 7.32 for each soul.

For the reason given above, a cotton crop can never be raised on bought corn and meat. It is not so much the difference in the cost of these articles, whether brought from abroad or raised on the farm, but it is a matter of profitably and economically utilizing the surplus labor every where needed, *at times*, in the cultivation and saving of a cotton crop. The West, then, can never depend upon the cotton South, when she once gets right, as a consumer of her grain. For she never can *produce cotton properly and well, unless she makes her grain and meat on the farm.* The theory of these great western canals is all wrong. If you would render Alabama a worse waste than she is now, abandon the raising of meat and corn here. The county of Montgomery raised 44 1-10 bushels of corn to the soul, or within four bushels of the average for Ohio, Indiana and Illinois, and $9.36 of meat, or more than they did. We have said nothing of the splendid cotton crop, worth nearly two and one-half millions of dollars, *not in chips and whetstones*, but in gold—or as much as the entire crop products, *estimated as if they were worth gold*, of three of the richest crop-producing counties in the State of Indiana; and nearly as much as any two of the counties in Illinois. The total value of her crops was $3,264,170; that of Butler county, Ohio, only $1,671,132; or a fraction only over one-half of that of our county of Montgomery, in the State of Alabama, and more than double any two counties in Illinois. Place the county of Marengo, or Dallas, or other of the richer counties of Alabama, on the stand, and the counties of the West would sink into insignificance beside the rich values their record would show.

The figures I have been giving, of the products of Alabama when properly cultivated and tilled, in comparison with the richest agricultural States of the West, sound to the new millions that inhabit and control the destinies of our country now, more like fiction than fact. Even our own people have forgotten, or they have never had the opportunity of comparing, our splendid agriculture before the war with that of the West and North. Had our condition been known at that time, as compared to that of our neighbors in other States of the Union, *there would have been no war between the States.*

I will speak of the climatic and other characteristics of this section of Alabama hereafter in this paper. I have given a fair statement, in the pages already written, of what Alabama was, as far as relates to the counties along the line of and contiguous to the South & North Alabama Rail Road, in an agricultural point of view, when her soils were properly cultivated and tilled before the war. I will proceed to give a brief record of what Alabama is now, as far as relates to the same subject and the same sections of the State. I place first before the reader a table giving the crop products of these counties before and since the war, or as taken from the census of 1860, before the war began, and from that of 1870, five years after the war ended.

PRODUCTS OF COUNTIES OF ALABAMA, 1860.

Counties in Black Belt.	Population. White.	Black.	Aggregate.	Value of Farms.	Value of Live Stock.	Number of Hogs.	Wheat—Bu.	Rye—Bush.	Corn—Bush.	Bushels Oats.	Tobacco—lbs.	Bales Cotton.
Barbour	14,629	16,183	30,812	$ 4,960,812	$ 1,225,193	55,523	6,001	1,585	909,973	15,727	205	44,518
Dallas	7,785	25,840	33,625	9,311,714	1,716,129	55,145	8,880	2,617	1,352,961	10,496	2,027	63,410
Greene	7,251	23,608	30,859	9,176,802	1,746,454	49,701	22,033	2,725	1,311,535	17,743	20	57,858
Lowndes	8,362	19,354	27,716	9,040,470	1,661,362	56,394	9,096	1,563	1,288,722	45,722	28	53,667
Marengo	6,761	24,410	31,171	10,291,862	1,699,143	58,457	4,495	1,583	1,384,616	13,979	200	62,428
Macon	8,625	18,127	26,802	5,825,099	1,291,568	44,775	23,728	1,679	972,723	27,264	60	41,119
Montgomery	12,122	23,782	35,904	9,883,964	1,748,273	63,134	6,317	1,262	1,586,489	33,476	476	58,880
Perry	9,479	18,245	27,724	7,275,412	1,305,872	41,707	12,540	1,012	1,074,257	16,239	605	44,603
Pickens	10,117	12,199	22,316	4,016,618	1,229,332	48,287	36,907	1,275	884,229	1,283	.....	29,843
Pike	15,646	8,789	24,435	3,744,687	1,133,938	55,156	3,153	960	823,752	13,199	185	24,527
Russell	10,936	15,656	26,592	4,959,649	964,095	37,877	18,911	660	776,955	22,087	1,275	38,728
Sumter	5,919	18,116	24,035	5,303,979	1,181,240	42,303	8,802	1,944	996,490	10,469	.....	36,584
Wilcox	6,785	17,823	24,618	7,311,117	1,303,368	46,326	3,278	727	1,011,359	9,681	.....	48,749
Totals	124,427	242,182	366,609	91,102,185	18,205,966	654,787	170,141	19,592	14,374,052	237,356	5,081	644,911
Autauga	7,105	9,621	16,726	2,901,285	778,906	27,483	10,105	2,795	559,521	7,034	1,052	17,329
White Counties.												
Blount	10,193	672	10,865	832,500	305,025	15,949	35,286	305	294,702	7,184	21,990	1,071
Walker	7,461	519	7,980	613,820	292,831	17,325	12,085	695	249,274	1,051	6,631	2,766
Winston	3,454	122	3,576	231,261	111,796	6,031	3,527	709	88,808	483	7,629	352
Totals	21,108	1,313	22,421	$ 1,677,581	$ 709,652	39,305	50,898	1,709	632,784	8,718	36,250	4,189

PRODUCTS OF 1860—Continued.

Mineral Counties.	POPULATION.			Value of Farms.	Value of Live Stock.	Number of Hogs.	Wheat—Bu.	Rye—Bush.	Corn—Bush.	Oats—Bush.	Tobacco—lbs.	Bales Cotton.
	White.	Black.	Aggregate.									
Jefferson	9,078	2,668	11,746	1,219,865	552,095	23,561	51,032	267	586,785	2,787	9,192	4,940
Shelby	8,970	3,648	12,618	1,401,230	442,289	23,785	37,448	1,283	378,660	11,854	2,574	6,463
Totals	18,048	6,316	24,364	$ 2,621,095	$ 994,384	47,346	88,480	1,550	965,445	14,641	11,766	11,403
Counties in Tennessee Valley.												
Franklin	10,119	8,508	18,627	4,096,733	838,487	31,861	21,763	3,774	764,967	16,074	6,801	15,592
Jackson	14,811	3,472	18,283	3,121,085	837,307	27,463	26,458	788	1,050,716	8,510	10,207	2,713
Lawrence	7,173	6,802	13,975	2,996,285	768,543	23,919	17,817	4,104	659,666	13,301	247	15,434
Lauderdale	10,639	6,781	17,420	4,554,063	845,171	24,101	38,751	3,328	646,603	30,569	3,525	11,050
Limestone	7,215	8,091	15,306	3,592,495	718,902	30,958	20,317	4,023	585,785	9,555	4,372	15,115
Madison	11,685	14,765	26,450	6,078,806	1,107,685	49,723	43,613	7,746	988,396	44,587	6,711	22,119
Mashall	9,596	1,872	11,468	1,372,766	518,027	27,035	20,429	859	462,446	6,780	3,775	4,931
Morgan	7,592	3,743	11,335	1,441,974	546,110	25,628	16,240	1,422	447,857	6,885	7,145	6,326
Totals	78,830	54,034	132,864	27,254,207	$ 6,180,232	240,688	205,388	26,044	5,606,436	136,281	42,783	93,281

PRODUCTS OF COUNTIES OF ALABAMA, 1860—Continued.

Counties in Black Belt.	Bushels of Peas & Beans.	Bushels of Potatoes.	Buckwheat and Barley.	Sugar—Hhds	Gal. Molasses	Wool—lbs.	Honey—lbs.	Butter—lbs.	Value of Animals slaughtered.	Hay—Tons.	Val. of Manufactures.	Value of Agricultural Products.
Barbour	84,741	278,556	468	..	13,900	11,426	38,266	121,935	$ 300,878	19	$ 18,415	$ 2,386,645
Dallas	38,753	194,483	106	..	.....	19,110	20,022	136,636	332,596	4,839	8,372	3,339,099
Greene	60,613	205,687	140	..	.....	27,568	15,683	151,520	324,828	2,753	12,894	3,113,374
Lowndes	24,764	198,085	260	..	245	16,327	28,855	126,526	319,841	5,339	6,709	2,925,453
Marengo	22,945	214,850	255	..	40	22,929	28,483	162,827	368,051	2,491	42,251	3,296,399
Macon	82,861	253,505	148	..	783	5,552	92,917	155,232	269,665	2,612	11,333	2,304,342
Montgomery	32,206	235,233	1,309	..	80	18,448	10,662	163,798	336,915	469	9,997	3,261,170
Perry	16,314	183,603	835	..	.....	17,124	35,931	148,932	291,614	48	6 845	2,408,695
Pickens	41,970	170,797	30	..	.....	16,594	31,196	157,503	315,826	1,405	18,391	2,159,425
Pike	79,493	247,222	13	..	621	8,730	40,816	130,026	303,472	....	71,320	1,534,965
Russell	69,361	235,720	120	..	2,476	7,510	21,015	138,915	237,360	7,515	4,754	2,019,289
Sumter	42,699	132,957	357	..	140	20,215	18,764	115,431	265,522	130	13,265	2,040,570
Wilcox	20,088	215,884	3,026	..	400	16,249	31,169	109,362	232,417	1,439	25,344	2,553,800
Totals	616,808	2,567,582	7,067	..	18,685	197,782	413,581	1,818,643	$3,898,918	29,289	$ 230,890	
Autauga	60,608	133,802	492	..	.....	12,289	23,799	109,239	190,636	.....	47,784	1,063,610
White Counties.												
Blount	13,565	46,929	169	..	4,060	7,454	8,000	102,490	79,759	11	30,280	206,867
Walker	16,493	40,862	41	..	1,480	7,889	12,142	46,515	74,122	1	32,983	270,629
Winston	7,954	18,375	22	..	.....	2,836	3,048	16,511	33,678	.....	14,970	74,722
Totals	38,012	106,116	232	..	5,540	18,179	23,190	165,516	$ 187,559	12	$ 78,233	$ 552,218
Mineral Counties.												
Jefferson	26,405	60,158	.....	..	.....	12,691	20,413	147,447	130,861	.....	1,155	576,658
Shelby	15,142	67,655	106	..	80	8,258	13,000	116,947	137,582	1,962	36,293	531,005
Totals	41,547	127,813	106	..	80	20,949	33,413	264,494	$ 268,443	1,962	$ 127,448	$ 1,107,663

PRODUCTS OF 1860—Continued.

Counties in Tennessee Valley.	Bushels of Peas & Beans.	Bushels of Potatoes.	Buckwheat and Barley.	Sugar—Hhds	Gal. Molasses	Wool—lbs.	Honey—lbs.	Butter—lbs.	Value of Animals slaughtered.	Hay—Tons.	Val. of Manufactures.	Value of Agricultu'l Products.
Franklin	18,100	66,071	18	..	1,449	21,896	13,823	169,851	259,303	68	85,995	965,634
Jackson	12,267	61,815	201	44	2,067	20,323	43,190	141,914	220,584	155	18,263	743,671
Lawrence	16,783	39,482	68	20	694	12,507	8,092	85,948	160,823	2,483	22,833	1,008,638
Lauderdale	15,362	50,278	6	..	5,280	17,354	8,415	102,881	164,482	2,329	16,551	857,007
Limestone	8,458	36,587	14	..	1,061	13,311	6,313	93,503	173,593	3,222	63,305	948,220
Madison	33,395	90,756	.....	..	6,448	16,725	22,341	170,114	222,761	5,641	44,279	1,520,685
Marshall	6,155	52,221	.....	..	9,919	10,819	11,282	99,032	125,124	288	.....	527,156
Morgan	14,892	46,616	2,753	..	5,418	13,695	13,246	100,199	131,271	1,001	25,923	536,835
Totals	125,612	443,924	3,060	64	32,336	126,630	126,732	963,144	$1,457,941	15,187	$ 353,651	$ 7,096,757

PRODUCTS OF COUNTIES OF ALABAMA, 1870.

Counties in Black Belt.	Population.			Value of Farms.	Value of Live Stock.	No. of Hogs.	Wheat—bu.	Rye—bush.	Corn—bush.	Oats.
	White.	Black.	Aggregate.							
Barbour	12,143	17,165	29,309	$ 2,374,493	$ 669,972	15,707	.....	.....	364,304	3,648
Bullock	7,233	17,251	24,474	2,468,172	715,225	11,045	364	3	389,791	13,632
Dallas	8,552	32,153	40,705	3,112,373	740,737	7,791	1,295	55	436,701	18,101
Greene	3,858	14,541	18,399	1,560,652	498,944	6,674	1,265	25	207,782	2,038
Hale	4,802	16,990	21,792	2,639,207	702,218	9,019	360	15	381,420	5,240
Lowndes	5,086	20,633	25,719	2,271,911	644,753	8,465	1,787	.....	453,187	10,901
Marengo	6,090	20,058	26,151	2,819,711	770,674	16,531	20	.....	598,938	11,538
Macon	5,103	12,620	17,727	1,486,811	415,079	4,996	2,429	.....	168,661	31,690
Montgomery	12,419	31,285	43,704	3,793,895	833,199	13,909	2,040	50	602,549	3,045
Perry	7,142	17,833	24,975	1,455,175	491,609	7,903	419	.....	841,985	1,935
Pickens	8,052	9,638	17,690	799,785	377,557	8,339	5,214	36	254,251	11,686
Pike	12,798	4,625	17,423	1,314,779	539,227	24,433	.....	.....	309,965	4,416
Russell	5,946	15,690	21,636	1,721,442	498,304	6,540	860	355	272,221	26,770
Sumter	5,202	18,907	24,109	1,684,953	513,788	8,024	472	127	334,110	1,822
Wilcox	6,767	21,610	28,377	2,347,868	957,754	17,020	2	41	660,978	1,725
Totals	111,193	270,998	382,190	$31,861,227	$ 9,370,040	166,396	16,517	697	6,279,843	158,187
Autauga	4,329	7,292	11,621	1,122,059	369,056	7,185	909	57	191,158	5,568
Baker	5,057	1,137	6,194	284,378	237,442	9,171	11,728	99	131,311	6,238
Totals	9,386	8,429	17,815	$ 1,406,437	$ 606,498	16,356	12,637	156	322,469	11,806
White Counties.										
Blount	9,263	682	9,945	649,291	435,315	15,983	47,275	1,049	266,555	12,799
Walker	6,235	308	6,545	296,480	216,724	8,309	9,131	621	158,810	2,420
Winston	4,134	21	4,155	149,410	175,028	10,985	3,278	1,471	94,165	2,162
Totals	19,632	1,011	20,643	$ 1,095,181	827,067	35,277	59,784	3,141	519,528	17,381

PRODUCTS OF COUNTIES OF ALABAMA, 1870—Continued.

Mineral Counties.	Population.			Value of Farms.	Value of Live Stock.	No. of Hogs.	Wheat—bu.	Rye—bush.	Corn—bush.	Oats.
	White.	Black.	Aggregate.							
Jefferson	9,839	2,506	12,345	1,140,247	430,702	13,753	45,219	207	251,184	9,336
Shelby	8,840	3,378	12,218	516,136	311,018	9,787	30,275	395	221,618	26,189
Totals	18,679	5,884	24,563	$ 1,656,383	$ 741,720	23,540	75,494	602	472,802	35,125
Counties in Tennessee Valley.										
Colbert	7,898	4,639	12,537	910,627	306,808	8,267	12,682	383	291,402	14,347
Franklin	6,693	1,313	8,006	488,593	309,542	8,608	9,070	310	264,136	7,055
Jackson	16,350	3,060	19,410	1,510,268	620,263	25,837	50,925	701	506,777	26,952
Lawrence	10,096	6,562	16,658	1,413,284	689,507	18,627	20,233	97	519,673	14,217
Lauderdale	9,921	5,170	15,091	1,405,630	500,471	16,196	24,126	286	447,155	12,526
Limestone	7,764	7,253	15,017	1,816,510	562,737	13,566	24,010	837	404,435	10,102
Madison	15,527	15,740	31,267	2,194,834	704,036	17,824	36,878	564	674,625	13,223
Marshall	8,504	1,367	9,871	692,799	390,242	12,597	17,228	378	187,491	9,445
Morgan	8,829	3,358	12,187	1,183,488	453,375	14,844	23,336	300	333,332	17,701
Totals	91,582	48,462	140,044	$11,616,033	$ 4,536,983	136,366	218,488	3,856	3,619,026	125,568

PRODUCTS OF COUNTIES OF ALABAMA, 1870—Continued.

Counties in Black Belt.	Tobacco—lbs.	Cotton—bal's	Bushels of Peas & Beans.	Bushels of Potatoes.	Buckwheat, and Barley.	Sugar—hhds	Molasses—gls.	Wool—lbs.	Honey—lbs.	Butter—lbs.	Value of Animals Slaughtered.	Value of Agricultural Products.
Barbour	.....	17,011	5,827	42,749	740	2,000	25,738	1,266	1,125	300	$ 30,598	$ 877.753
Bullock	.....	17,992	3,053	33,280	3	.....	.....	656	710	50	325	928.640
Dallas	130	24,819	2,956	41,535	6,250	.....	.....	1,926	5,368	63.122	60,343	1,230,783
Greene	.....	9,910	1,030	22,943	.....	.....	.....	2.498	941	81,187	54,772	509,713
Hale	.....	18,573	987	26,787	.....	.....	.....	9,759	70	74,257	47,566	945,729
Lowndes	.....	18,369	265	24,914	.....	....	665	385	2,317	55,517	53,443	974,170
Marengo	370	23,614	930	40,424	568	.....	45	2,135	3,743	164,391	13,527	1,253,987
Macon	282	11,872	3,066	20,785	1,745	.....	205	1,854	3,754	45,894	33,636	576,606
Montgomery	.....	25,517	1,281	27,722	3,735	.....	1,599	201	483	3,403	90,153	1,333,946
Perry	.....	13,449	20	14,000	.....	.....	.....	695	.....	.....	.....	964,188
Pickens	.....	8,263	4,269	20,406	.. ..	.....	316	3,799	500	28,482	84,016	472,582
Pike	.....	7,192	7,822	64,451	8,849	2,000	27,201	3,123	4,180	21,725	175,976	465.249
Russell	210	20,796	8,015	53,412	985	.....	.....	662	30	18,975	35,610	993,319
Sumter	.....	11,646	2,082	17,725	.....	....	.....	2,513	300	45,270	57,726	639,731
Wilcox	189	20,005	533	92,932	12	.....	797	2,611	7,551	47,428	52,416	1,162,085
Totals	1,191	249,018	42,130	544,055	22,887	4,000	56,566	34,083	31,073	650,003	$789,031	$13,328,481
Autauga	285	7,965	4,917	38,814	14	.....	75	2,060	5,046	25,542	32,531	429.435
Baker	3,256	1,360	3,986	29,996	137	.....	437	7,634	7,462	46,293	53,483	410.320
Totals	3,541	9,325	8,903	68,810	151	.....	512	9,694	12,508	71,835	$ 86,014	$ 839,755
White Counties.												
Blount	5,682	950	672	36,347	122	.....	14,376	14,088	9,452	83,055	109,300	200,018
Walker	1,213	928	1,158	34.924	.....	.....	1,869	3,243	1,322	36,652	52,124	137,975
Winston	7,954	205	146	17.991	62	2,551	5,259	335	42,759	42,759	50,123	65,372
Totals	14,749	2,083	1,976	89,262	184	.....	18,776	22,590	11,109	162,466	$ 211,547	$ 403,365

PRODUCTS OF COUNTIES OF ALABAMA, 1870—Continued.

Mineral Counties.	Tobacco-lbs	Cotton-bal's	Bushels of Peas & Beans	Bushels of Potatoes.	Buckwheat and Barley.	Sugar-hhds.	Molasses-gls	Wool—lbs.	Honey-lbs.	Butter—lbs.	Value of agricultl products.	Value of agricultl products.
Jefferson	10	1,470	1,917	25,082	7	.....	8,180	8,135	5,358	31,566	108,809	190,326
Shelby	3,710	2,194	5,082	24,960	336	.....	3,755	6,283	11,562	73,099	86,668	143,733
Totals	3,720	3,664	6,999	50,042	343	.....	11,935	14,418	16,920	104,665	$195,476	$ 334,059
Counties in Tennessee Valley.												
Colbert	215	3,936	360	9,498	.....	.....	4,897	4,026	5,890	6,735	85,680	322,588
Franklin	6,656	2,072	1,488	15,074	.....	.....	5,869	6,142	4,565	31,061	79,448	231,206
Jackson	11,107	2,339	474	32,276	.....	.....	18,021	16,800	24,547	121,075	1,213,028	436,069
Lawrence	6,324	9,243	685	21,148	10	.....	12,085	8,297	786	174,063	104,231	660,772
Lauderdale	1,714	5,457	192	9,511	.....	.....	9,045	11,643	4,624	34,306	69,511	472,388
Limestone	9,582	7,319	87	33,349	.....	.....	5,238	4,880	3,173	115,982	130,830	533,204
Madison	8,736	12,180	523	32,823	40	.....	8,134	5,730	6,334	78,383	120,667	876,161
Marshall	5,477	2,340	92	17,787	150	.....	10,229	8,693	6,378	47,995	101,628	215,192
Morgan	1,110	4,380	242	25,018	56	.....	11,877	6,747	2,797	70,886	107,250	465,633
Totals	50,921	49,266	4,183	196,484	256	.....	85,395	72,858	59,094	680,476	$1,012,273	$ 4,113,213

Commencing at the northern end of the road, and taking up the counties in the same order that we have done heretofore, we will see what Alabama is now.

The above tables will show the comparative amount of the products of the soils of these counties in Alabama, and, rated at the same price, their value in dollars and cents. It is true that the value of every product of the soil is greater now than before the war. But to arrive at a comparison, and mathematical measurement of the soil products, before and since the war, I have made the standard of prices the same now as it was then. Some of the minor soil products of the South are stricken out of the compendium of the census of 1870, for the reason, I suppose, that they had become too insignificant, since the war, to be noted. Some of them before the war—peas and beans, for instance,—were of great value as articles of food. They are produced now, however, as compared to the period before the war, in quantities too small to be noted, in each county, in the compendium of the United States census for 1870. I will give here a table of the products left out in the county enumeration for 1870, but placed in the enumeration for the whole State:

Year.	Peas and Beans.	Hay.	Rice.	Barley.	Rye.
1860	1,482,070	62,211	493,465	15,135	72,457
1870	156,174	10,613	222,945	5,174	18,977

From the above table, it will be seen that the omitted articles of crop productions are insignificant now, even for the whole State. The total money value of these articles, left out for the whole State, was $1,035,668 in 1860, and only $200,868 in 1870. With this explanation, I will proceed with my examination of Alabama, as it is, so far as relates to the counties above referred to. We have heretofore shown what Alabama was—or the counties in Alabama—by comparing them with the States of the West. We will see what the counties in Alabama are now, by comparing them with themselves before the war. To make this comparison entirely just and

equitable, as some of the minor products are wanting in the census of 1870, of a money value less than twenty per cent. of what they were before the war, I will substitute the meat crop—the money value of which before the war, for the whole State, was $10,237,131, and in 1870 $4,670,146, or 46 6-10 per cent. of what it was before the war. It is my opinion that this comparative increased money value given to the meat crop of Alabama since the war, arises from the fact that it was estimated at a higher price, or the price ruling since the war. It is right that this should have been so measured in the census. I am confirmed in this opinion, from the fact that the total number of swine in Alabama in 1860 was 1,748,321, and in 1870, 719,757, or only 41 per cent. Be this as it may, the meat crop of Alabama, though not strictly a crop growing directly from the soil, was, and always will be when our country gets right again, next to cotton and corn, the principal of our agricultural industries and productions; and though less effected by the results of the war than are the omitted minor products, amounting in 1870 to nothing, any way, I will use this, with cotton, corn, wheat, and potatoes, as five leading products, in comparing our counties in Alabama with themselves. It is true, that by taking strictly soil products, the loss to our agriculture would appear greater; but no one will deny that this measure will show better for the Alabama agriculture of to-day. I insert here a table prepared on this basis:

PRODUCTS OF COUNTIES OF ALABAMA.

County or Section.		Population. White.	Black.	Aggregate.	No. of Hogs.	Wheat—Bu.	Corn—Bush.	Cotton—B'les	Potatoes—Bu.	Value of Animals slaughtered.	Value of Five Staples.	Per capita Production.
Tennessee Valley	1860	78,830	54,034	132,864	240,688	205,388	5,606,436	93,281	443,924	$ 1,457,941	$ 8,353,388	$63 00
" "	1870	91,582	48,462	140,044	136,366	218,488	3,619,026	49,266	196,484	1,001,603	5,164,970	36 16
Madison	1860	11,685	14,675	26,450	49,273	43,613	988,396	22,119	90,754	222,761	1,674,623	62 93
"	1870	15,527	15,740	31,267	17,824	36,878	674,625	12,180	32,823	120,667	992,998	31 91
Morgan	1860	7,592	3,743	11,335	25,628	16,240	447,857	6,326	46,616	131,271	640,017	56 47
"	1870	8,829	3,358	12,187	14,844	23,336	333,332	4,380	25,018	107,250	480,791	39 44
Limestone	1860	7,215	8,091	15,306	30,958	20,317	585,785	15,115	27,577	173,593	1,104,599	72 85
"	1870	15,527	15,740	31,267	13,566	24,010	404,435	7,319	33,349	130,830	660,933	44 06
Blount, Walker and Winston	1860	21,108	1,313	22,421	39,305	50,898	632,784	4,189	106,166	187,559	757,632	33 79
" " "	1870	19,632	1,011	20,643	35,277	59,784	519,528	2,083	89,262	206,370	608,548	29 48
Jefferson	1860	9,078	2,668	11,746	23,561	51,032	586,785	4,940	66,158	130,861	592,540	50 48
"	1870	9,839	2,506	12,345	13,753	45,219	251,184	1,470	25,082	80,455	314,870	25 50
Shelby	1860	8,970	3,648	12,618	23,785	37,448	378,660	6,463	67,655	137,582	633,217	51 15
"	1870	8,840	3,378	12,218	9,787	30,275	221,618	2,194	24,960	86,668	323,832	26 50
Autauga	1860	7,105	9,621	16,726	27,483	10,105	559,521	17,329	133,802	190,636	1,218,321	72 83
"	1870	4,329	7,292	11,621	7,185	909	191,158	7,965	38,814	32,531	460,557	39 63
Montgomery	1860	12,122	23,782	35,904	63,134	6,317	1,586,480	58,880	235,233	336,915	3,570,082	99 45
"	1870	12,419	31,285	43,704	13,909	2,040	602,549	25,517	27,722	90,153	1,423,387	32 57
Black Belt	1860	124,427	242,182	366,609	654,787	170,141	14,374,052	644,911	2,767,582	3,898,918	37,920,474	103 43
"	1870	111,193	290,998	382,190	166,396	16,517	6,279,843	249,018	544,655	973,416	14,276,221	37 41

We will be brief in our examination of this table, though it contains the substance of what is the matter with Alabama, at this time. The population of the Valley of North Alabama, in 1860, was 132,864; in 1870 140,044, or a total increase of 9 per cent. The whites increased in this valley 19 per cent., or from 78,830 in 1860, to 91,582 in 1870, and the blacks decreased ten per cent., or from 54,034 to 48,462. The blacks were in 1870, 35 per cent. of the total population. In 1860, 40 1-10 per cent. of the total. Acres cultivated in 1860 were 993,775, in 1870 602,365, or 60 6-10 per cent. The aggregate value of the five leading farm products was $8,353,388 in 1860, and $5,065,638 in 1870, or 60 38-100 per cent.; or the value of the products is in exact ratio with the number of acres cultivated in each year. The *per capita* productions were $63.00 and $36.16. More people cultivated fewer acres, is the sole cause of this *per capita* loss in 1870. There was produced in 1860, in this valley, 5,606,436 bushels of corn, and 3,619,026 bushels in 1870, or 64 per cent. Cotton 93,281 bales in 1860, and 49,266 bales in 1870, or 43.6 per cent. Meat, produced in 1860, $1,457,941, and $1,001,603 in 1870, 68.6 per cent. It will be seen, here, that the per centage of meat is the largest. This arises from the heretofore stated fact, that the price prevailing since the war, has been used in obtaining the census value of this article in 1870. It shows, also, very clearly, that I am doing no injustice, in my measurement of the present agriculture of Alabama, in placing this product in my tables.

MADISON COUNTY.

The population of Madison, in 1860, was 26,450, in 1870, 31,267; a total increase of 18 per cent. The whites increased 3[illegible] per cent., and the blacks 9 per cent. This, with the other counties in the valley, is a white man's country, as it is called; as is clearly shown by the silent, eloquent, and unerring teachings of these figures. The aggregate value of the farm products of this county, in 1860, was $1,674,623, in 1870 $992,998, or a loss of 50.7 per cent. Acres cultivated in 1860, 214,509, and 139,305 in 1870, or a decrease of 65 per cent.;

very nearly corresponding with the decrease in production. The *per capita* productions were $62.93 in 1860, and $31.91 in 1870. Here again, more people cultivated fewer acres, or did not work at all; and we see the *per capita* crop productions only about one-half of what they were before the war. The war. The county of Limestone, as can be seen from the tables, has the largest *per capita* production, both in 1860, and 1870, of any county in North Alabama, and averaged more than the whole valley. The county of Morgan shows a falling off in the black population, and an increase in the white. The negroes in this county are only 27 per cent. of the whole population. The *per capita* productions were $56.47 in 1860, and $39.44 in 1870, or a loss in *per capita* production of only 30.16 per cent. Blount, Walker and Winston, had only 5.5 per cent. of negroes in 1870, and their loss in *per capita* was only 12.76 per cent. The South & North Alabama Rail Road was completed in 1872, through these counties, and they are being fast settled up.

CULLMAN.

The condition of the Germany Colony of Cullman is shown by the following statement of its founder, John G. Cullman, Esq.:

The first settlers arrived in this colony, May 28, 1873, and consisted of five families.

In January, 1874, the number had increased to 130 families, and to-day we have nearly 500 families, of whom 130 are living in the town, and the others are on farms in the country.

In the town, where all was woods when we came here, 142 buildings have been erected.

We have a furniture factory, (Southern Novelty Works,) wagon factory, cigar factory, fire-arms factory, steam flouring mill, saw-mills, tannery, five stores that keep everything for sale that is needed, and do a large business, in buying up all the produce that comes to this market, three good hotels, drug store, physicians and representatives of all trades.

The first fifty families, with few exceptions, were poor people and acted as pioneers in cutting out streets and improving the town; they were employed by myself and paid $1.50 per day; fire-wood was cut and delivered to the rail road

company at $1.75 per cord. This was of material assistance to settlers in the beginning.

These people entered government land, and their farms are worth from $1,000 to $2,500 to day. Before the settlement of this colony the land here had hardly any value, and could be bought at from 12½ to 25 cents an acre; to-day the average price is $3.00, and near town is sold at from $10.00 to $15.00.

Old farms, that were offered when the settlement was begun for $500.00, were sold a year following for $1,250.00, and others, offered for $700.00, sold for $1,800.00, and so on; over 100 old farms have already passed into the hands of new settlers.

The whole territory, which forms the Colony of Cullman, was not worth over $250,000.00, to-day it is worth $3,000,000. Section 15, which formerly paid $2.40 taxes, now pays about $1,200.00.

Wheat, corn, rye, barley, oats, potatoes, hops, and all the products of the South and East, are raised here.

Particular attention is being paid to grape culture, and with good success.

The product of one acre of grape vines, in this the second year of its growth, amounts to $500.00.

It is safe to assume that, with a full crop, each vine will produce 50 cents worth of grapes, and, as from 1200 to 1600 can be planted on an acre, they will bring, at least, from $600.00 to $800.00.

JOHN G. CULLMAN.

JEFFERSON COUNTY.

The county of Jefferson stood, in 1860, $50.48 in *per capita* farm products, and $25.5 in 1870, showing a loss per cent. of 49.49. This great loss in production, in a county containing only 20 per cent. of negroes, was a matter of some surprise to me. I, however, found the cause of this loss. Jones' Valley, extending entirely through the county, a distance of fifty miles, and from three to five miles wide, was, and is now, the principal agricultural feature in the county. In examining the detailed statistics, by townships, of this county, I found that of 2,506 negroes in the county, 2,289 lived in this valley in 1870, and 3,697 whites, or the negroes were 38 2-10 per cent. of the total population here. I found the loss had all

occured there, and was chargeable there, as elsewhere in the State, to the loss on, or shrinkage of negro labor. The county of Shelby has suffered in the same way, and to the same extent, as Jefferson. It stands $51.15 in comparative value of the counties in Alabama, as a farm producing county.

Autauga has been so much cut up, since the war, that no fair comparison can be made of this county, now, with its former self. It stands $72.83 in the tables. We come next to the county of Montgomery.

There has been some change in the county lines of this county, but not affecting the *per capita* production since the war, as the portion cut off carried an equal proportion of population. Population of this county in 1860 was 35,904, and in 1870 43,704. The whites increased only 2½ per cent., the blacks 23½ per cent. There was a loss of white population in Alabama, in the decade ending with 1870, of nearly one per cent., or 4,887 souls. The loss of the whites was mainly from the accidents of the war. The increase of the negroes was altogether in the counties of the black belt. The larger towns and cities, have the greatest amount of this increase. The blacks were 71.5 of the population in 1870, and the loss in production 67.25 per cent. We come now to the Black Belt. We find, that by taking the whole area of ten thousand square miles, the whites had fallen off about ten per cent., and the blacks had increased about twenty per cent., and that the blacks in 1870 were 71.1 of the population, and that the loss in production was 63.83 per cent., or that there was produced in this region only 36.17 per cent. of the total before the war, or as taken from the census of 1860. This is nearly the same proportion of loss as that of the county of Montgomery; 71.3 of its population being negroes, and 71.1 for the whole area. By an inspection of the following table, the value of the soils of each section, and each county, for agricultural productions, before and since the war, will be found measured in dollars and cents—the American rule for measuring all things. Also, the proportion of negroes, in each section and county, for 1870; the *per capita* productions for the two periods; the per cent. of production, and also the per centage of loss, for 1870, as compared with 1860:

County or Section.	Per capita production.		Per centage of production.	Per centage of loss.	Per centage of negro population, 1870.
	1860	1870			
Tennessee Valley	$ 63 00	$ 36 16	57.40	42.60	35
Madison	62.93	31.91	50.70	49.30	47
Morgan	56.47	39.44	69.84	30.16	27
Blount, Walker and Winston	33.79	29.48	87.24	12.76	5.5
Jones' Valley	....	.....	50.70	49.30	38.2
Autauga	72.83	36.95	50.73	49.47	62.75
Montgomery	99.45	32.57	33.37	67.23	71.5
Black Belt	103.25	37.41	36.23	63.77	71.9

The first column measures, in my opinion, the exact comparative value of the soils of the several sections, as agricultural regions. They were all cultivated equally well in 1860, the period upon which this column is founded. It will be seen, that the Valley of North Alabama stands $63.00; Madison county $62.93. Madison is, perhaps, not fairly measured in this table, as her large city of Huntsville is not deducted, though a city of non-producers; this county, this being done, will stand equal to Limestone, in the value of her soil for farming, or $72.85. With this exception, this table measures fairly the agricultural value of the soils of all the sections and counties, along the South & North Alabama Rail Road. It would read then, Valley of North Alabama $62 93, Madison $72 85, Limestone $72 85, Morgan $56 47, Blount, Winston and Walker $33 79, Jefferson $50 48, Shelby $51 05, Autauga $72 83, Montgomery $99 45, Black Belt $103 43. In other words, one man would, and did produce, in 1860, by his labor, $62 93 upon an average, in the Valley of North Alabama, $103 43 in the Black Belt, $50 48 in Jefferson county, and $33 79 in Blount, Walker and Winston. It will be seen that the loss in production is everywhere in exact proportion to the per centage of negroes in any county or section. The number of negroes in Blount, Walker and Winston is 5½ per cent., and the loss of production is 12.76 per cent.; Morgan county 27 per cent. negroes, loss 30.16 per cent.; Valley of North Alabama, negroes 35 per cent., loss 40 per cent; Jones' Valley 387-10 per cent., and the loss 49.30 per cent.; Madison county 50 per cent. negroes, and the loss is 49.30 per cent.; Montgomery 71.5 per cent. negroes, and

the loss 67.25 per cent.; Black Belt 71.1 per cent. negroes and the loss is 63.83 per cent. That the amount of this loss may more fully appear, we will continue our examination and comparison of the Black Belt, with itself, for 1860 and 1870.

There was raised here, in 1860, 14,374,052 bushels of Indian corn; in 1870, 6,279,843 bushels. Wheat, 170.141 bushels in 1860, and only 16,517 in 1870. Cotton, 644.911 in 1860, and 249,018 in 1870. Potatoes, 2,767,582 bushels in 1860, and 544,055 in 1870. Hogs, 654,787 in 1860, and only 166,396 in 1870. Meat, $3,898,918 in 1860, and only $973,416 in 1870. Stop, reader, and look again over these figures and results. They tell what Alabama is now, and what is the matter with her. Your losses, and your condition, are truthfully and truly expressed here, people of the rich counties in Alabama, in figures, in dollars and cents.

Is there any wonder that want, and gaunt, haggard despair prevails everywhere in the Black Belt, since 1867? If the reader in Alabama will only look to the end of that year, he will recollect that a sadly dark cloud settled then, over this part of Alabama, and from that time, until now, this section has been gradually growing poorer. We will continue our examination, and comparison of the Black Belt, with itself. We have stated that the farmers in the Black Belt, produced corn and meat enough, before the war, to do them, and no more. This with an immense amount of small food crops, carried them comfortably through the year. The counties south of the Tennessee river, in the Valley of North Alabama, and those in the Valley of Virginia, extended into Alabama, furnished a large amount of the surplus of meat and breadstuffs for the army of non-producers in the Black Belt; but the farmers, themselves, consumed in their families, and agricultural operations, the entire amount of grain and meat crops raised in this section. In 1860, they raised 14,374,052 bushels, and only 6,279,843 bushels in 1870, or a deficiency in the corn product of *eight millions ninety-four thousand and two hundred and nine bushels.* As can be seen from the tables, there were more mouths to feed, here, since the war, than before; and it is well known that this deficiency in corn was paid for at a high rate, averaging since 1867, $1 25 per bushel laid down in the crib, on the farm. Including com-

missions, advances, and forced mortgages on growing crops a system prevailing everywhere in Alabama, where cotton was produced, it was nearer double this figure, on an average. The cost of this short corn, was then $10,117,511. The meat production, at the prices ruling in 1860, was $3,898,918, and $973,614 in 1870, or 25 per ct. of that of 1860. In 1860, there were 654,787 hogs in this region, in 1870, only 166,396, 25.36 per cent.

The comparative accuracy of the statistics of the census can be seen here—only 36-100 of one per cent. difference in the ratio of meat products in 1860 and 1870, and that of the number of hogs in each of these years. The deficiency of meat was $2,925,502. But the deficiency of meat was also saddled with commissions, advances, haulage, profits, under forced mortgages, and amounted, when it reached the smoke-house on the farm, to at least $5,000,000.

We come next to potatoes. This crop amounted here in 1860 to 2,767,582 bushels. In 1872, to only 544,055, or 19⅔ per cent. It has been seen, that the small crops left out of the county records, but tabulated for the whole State, were, in 1870, only 19.41 per cent. of what they were in 1860. So, that the production and loss on the potatoe crop may be considered as applying to all the left out and unenumerated crops of this section. In dollars and cents, this appears small; but in health, comfort and convenience, these small crops now are sadly missed in this section. Owing to the climate, these small crops grow better here, and are missed more when wanting than in any section of the United States. Hundreds and thousands of once well to do, but now poor families in Alabama, live from April to November on the crops of their gardens, seasoned with a little salt, and a very little meat. The deficiency in potatoes here is 2,223,527 bushels. Although our farming people do not buy them, and can not buy them now, they must fill up with something else, or lie under a log, and starve to the extent of the loss. In dollars and cents, it would cost here one dollar per bushel now, although we have estimated them in our tables at one-third of this amount, or $2,273,527.

The loss on the fodder crop, amounting in 1860 in the whole State, to 300,000 tons, and in 1870 to only 150,000 tons, or

only a few more tons than the crop of the Black Belt alone in 1860, is seriously felt in this section of Alabama. It amounts now to less than 50,000 tons for this whole section, or a loss of 100,000 tons, costing the farmer now, in imported hay, over $2,000,000.

The wheat crop of 1860 was 170,161 bushels; in 1870, only 16,517 bushels. This was a small crop, even in 1860, but gave 2½ bushels of wheat to each person of the white families engaged only in farming here in 1860, and was all of this article they used. The loss, at one dollar, is $153,624; but as the farming white people in this section now use only corn bread, and do not buy flour, we will place the loss at the above figures.

The unenumerated lost crops of this section are large, but we will take no account of them here. We will add up now, and see how we stand:

Lost Corn	$10,117,511
" Meat	5,000,000
" Potatoes	2,237,527
" Fodder	2,000,000
" Wheat	153,624
Total	$19,508,662

Now what has the farming population with which to pay this great debt every year? This debt must be paid first, or the people will starve. It is meat and bread—it is life itself. We find nothing but a cotton crop of 249,018 bales, of 400 pounds each. The product in 1860 was 644,911 bales; in 1870 it was 249,018, or only 37.05 per cent. As there is no record of the amount of cotton produced in each county, except that made by the census at the end of each decade, and to show that the cotton product, as enumerated in the census of 1870, is an average for Alabama since the war, I will insert here a table of the receipts at the port of Mobile, for the period commencing with 1859 and ending with 1876; and also the prices of cotton at that port for each and all of these years:

MONTHLY RANGE OF PRICES OF COTTON IN MOBILE FOR SIXTEEN YEARS, AND TOTAL RECEIPTS.

SEASON.	October.	November.	December.	January.	February.	March.	April.	May.	Average For Season.	Total Rec'ts.
1859-60	9 @11 5/8	9 @12 1/4	8 @12 1/2	6 @12 1/2	6 @12 1/2	6 1/2 @12 1/2	3 @12 1/2	3 @13	6 1/4 @12	842,729
1860-61	5 @12 1/2	6 @12 1/2	6 @12	6 1/4 @12 1/2	7 @12 1/2	7 @32 1/2	7 14	nominal..	6 3/8 12 3/4	549,441
1861-62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1862-63	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1863-64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1864-65	.....	.....	.....	.....	.....	.....	.....	.....	.....	75,305
1865-66	34 @56	40 @52	38 @50	38 @50	36 @49	30 @46	25 @37	25 @39	32 1/2 @46 1/4	429,102
1866-67	28 @41	25 @38	24 @34	26 @34	25 @32	23 @31	17 @29	19 @26 1/2	23 @32 1/4	239,516
1867-68	12 1/2 @19 1/2	12 1/4 @17 1/4	11 3/4 @16	12 1/2 @18 1/4	15 1/2 @25	19 1/2 @27 1/2	26 @33 1/2	24 3/4 @32 1/4	17 1/4 @24 3/4	366,199
1868-69	19 @26	20 3/4 @24 1/2	21 @25	22 1/4 @28 3/4	25 @29 1/4	24 @29	24 @28 1/2	23 @28 1/2	22 1/2 @28	230,621
1869-70	22 3/4 @25 1/4	22 1/4 @25	22 1/2 @24 1/2	22 3/4 @25 1/4	21 1/4 @25	19 @23 1/2	19 1/2 @22 3/4	20 1/4 @23	20 3/4 @24	306,061
1870-71	13 @15 1/2	13 3/4 @15 3/4	12 3/4 @15	13 @14 3/4	12 3/4 @14 5/8	12 1/4 @14 1/4	12 1/2 @14 1/4	12 1/4 @16 1/4	13 1/2 @15 5/8	404,673
1871-72	17 1/4 @20	17 1/8 @17 3/4	18 1/4 @19 1/2	18 3/4 @21 3/4	20 5/8 @22 1/4	20 1/2 @22 1/8	21 1/4 @22 1/2	21 @23 3/4	19 3/4 @21 3/4	288,012
1872-73	17 @19 1/4	17 @19	17 1/4 @19 3/4	17 1/4 @20	17 1/2 @19 3/4	16 @19 1/4	15 3/4 @19	15 @18	16 1/2 @19 1/4	332,457
1873-74	13 1/2 @17 1/2	12 1/2 @16 1/2	13 1/2 @16	13 1/4 @15 3/4	13 @15 5/8	13 1/4 @16 1/4	14 1/4 @17	15 @18	13 1/2 @16 5/8	299,578
1874-75	13 1/8 @14 3/8	13 1/4 @16 1/4	12 3/4 @14 1/4	12 1/4 @14 3/4	13 1/2 @15 5/8	14 1/4 @15 3/4	14 1/2 @16	14 @15 1/2	13 1/2 @15	320,822

Average total receipts from 1865-66 to 1874-75, inclusive..... 301,703

NOTE.—This range of prices embraces the lowest and highest prices reported paid for Good Ordinary and Middling during the above months, since 1868-69; previous to that time, for Good Ordinary and Strict Middling.

☞ This table is copied from the Report of the Mobile Board of Trade.

It will be seen that the average receipts for the port of Mobile from 1866 to 1875, ten years, was 301,703 bales. The receipts for the census year was 506,061, or more than the average receipts for ten years. The rise and fall in the receipts for the port of Mobile, for each year, measure always the rise and fall in the aggregate amount of the cotton product of Alabama. The prices are also given in detail, and for each month of the season, from 1859 to 1876. Though cotton has risen greatly since the war, it is now only about the same price in Europe, (and of course here, in gold,) as before the war; and here it will remain, for the next decade at least.

The cotton bale of the census weighs 400 pounds, and I value it at ten cents, or $40 per bale, the price it was in the years immediately preceding the war. When we left our subject, there was a deficiency of $19,508,662 to be paid for out of the cotton crop of the Black Belt, amounting to 249,018 bales. At twenty cents per pound, or $80 per bale, the price ruling then, the cotton crop of the Black Belt was worth $19,921,440, or just about paid for this deficit for food, to say nothing of tools, clothing, medicine, and the thousand and one unenumerated things incident to and necessary for farming, for rent, repairs, time, and the wages of labor. It will be seen that cotton commenced falling this year, and it is worth now, as heretofore stated, not more than ten cents per pound, or the price before the war, and a price above which it will not average for any decade hereafter. When cotton was at twenty cents, it has been seen that the people of the Black Belt *could live, and just live*, on their reduced productions; but could buy nothing, or make no clear money. Cotton has not averaged since 1870 more than 12½ cents per pound to the planter, after paying advances, interest, and commissions on the forced mortgages. At this price, the cotton crop of the Black Belt was worth $12,455,900, or there is a *deficit* of $7,052,763 in the payment for *meat and bread*, the very essentials of life. This state of things has existed here for five years, and will never grow better with the present system of labor. It has been asked how these people lived? *Go look in the book of mortgages and deeds at your court-houses and you will see. Ask for the treasured relics of a race that has*

passed away! Your women unadorned with the treasures of art, their jewels given up, that their offspring might live.

I am not above the figures, when I state it as a fact, that one-half of this area of ten thousand square miles, has been mortgaged, eaten up, and has changed hands, since the war, and the remainder, two years ago, could have been bought for a song. Since then, there has been some little change for the better; but not much. When cotton was worth 20 cents, and upwards, the people could live, and just live, notwithstanding the loss in production here, but as cotton continued to fall from 20 to 17, 15, 13, 12, and then to 10 cents, and under the death like shadows of disappointment, and despair, settled sadly and slowly over this section of our State. The high prices of cotton alone, kept us from starving, and kept off the evil day. Free negro labor is a failure in Alabama, as it has been the world over, and from the beginning of time. I knew this, when our civil war ended, and so did every intelligent man in America. But I hoped the superior vigor of Anglo-American people, would make our country an exception to the rule, and that the negro could be made self-sustaining, as a race, in Alabama; but the figures in this book, and elsewhere, the condition of agriculture, any, and everywhere in the South, where they are the only reliance for labor, prove conclusively, that I am hoping against hope. I can not enter here, into a discussion of this negro question. His value as a laborer, now, is truly measured, and given, in this paper. Go back with me now, gentle reader, to the spot where we stood on the fourth day of July, 1860, on the southern end of the Blue Ridge mountains, near the exact centre of the State. Sixteen years ago, we met on this spot, and I bade you look out on a scene of agriculture, such as the world never saw. Look again, and what do you see now, on the fourth day of July, 1876! The same fertile soil, the same air, and the new artesian well water, is there. The same people are there, too. The Alabama, the Tombigbee, and and the Warrior rivers run here now, as they did then, cut down deep into the rich dark limestone formation. Only an occasional steamboat is seen now, on these rivers, as they meander slowly along the vast, now uncultivated, prairie meadows. It is ribbed all over with rail roads, now, built

mainly since the war; some long, and some short, some running, and some not. The cities and towns have grown larger; but that splendid agriculture you saw on the fourth day of July, 1860, is gone, forever gone, and a sickly, hand-to-mouth, unprofitable agriculture, is carried on here now. Look at the country immediately at your feet—the mountain plain of Autauga. Go with me over the southern section of this region, some ten to fifteen miles wide, bordering as a rich selvage, the rich prairie belt, all the way from Marion to Wetumpka. A region of rich land, good water, and good health, all combined; and a region where once was carried on the most elegant and comfortable agriculture in the State. The comfort is still there, but the elegant agriculture is all gone; and I find here, that the farmers are abandoning negro labor, and they, and their young sons are cultivating their broad fields, by themselves. A visit to the farm of a single planter, in this region, will serve as a sample of all, as he is here well known as a model, and leading farmer, in this region; that of Lazarus B. Parker. He owns some six thousand acres of land, in the south-eastern part of Autauga county. When the war ended, he owned more than a hundred slaves; property made on this identical farm, in thirty years. When there, a few days ago, he showed me the first field cleared on this farm, having been under cultivation over fifty years, and better soil now than when first cultivated. The water was of course good, coming as it does from the foot hills of the Appalachian chain. But the great granaries, the miles of great grain and cotton fields were wanting. The reason is summed up in a few words, as given by Mr. Parker himself. I have kept my negroes mostly around me, and whilst cotton was high I kept about even. But as cotton went down, they seemed to become more unreliable and worthless, as laborers, and for the last five or six years, I have lost money on every free negro around me, and with the exception of two or three old, and trusted family negroes, whom I expect always to support, on account of their fidelity and faithfulness when slaves, I have one negro only, about me, and that is my cook. Whilst sitting in his piazza, in June, and talking on this subject, I heard a number of ploughmen coming into the front yard, or grove, from a side gate, and as they came into the

yard, I saw that they were all white men and boys, eight or ten in all, and his son, a youth of fourteen, in the lead. There goes my labor now, as the ploughmen passed by. What has become of your old negroes? The Lord only knows. They are scattered among the hills around here, doing nothing. There is no money in farming with free negroes, now. I walked out, and looked over his once splendid farm, a lovely valley, some four miles long, and two miles wide; with a large, clear, swift running creek, running through the middle, with not a particle of swamp on its borders, the farm all covered over with weeds and grass. It is simply waiting now, and waiting for labor only; as are hundreds of thousands, and even millions of acres of rich lands, all over the State. This man is one among thousands, in Alabama. He always had money, and paid no extra money on advances, and made *all of his corn and meat on his farm*; but he did not make enough with free negro labor, to feed over one hundred mouths, and have any profit left, when cotton was under 20 cents. If this man, a success before, during the war, and now, has failed with free negro labor, there is an end of it. This man is well known, and his opinions and actions are always laws, on any subject, where he is known. The country grows poorer as the plain rises slowly northward, from this selvage section of Autauga; but, at and around the spot on which we are standing, any farmer can do well, if he will work, as he can, any and everywhere, on this elevated, tree covered mountain plain.

I will insert here, a letter received from the German Colony of Strasburg, recently located on the rail road, in the northern part of this region. They have been here only one year, and I have heard of no complaint. The letter speaks for itself:

STRASBURG, ALA., August 12, 1876.

Col. Milner:

We settled at this point about 18 months ago, leaving New Albany, Indiana, as a colony, the 14th of February, 1875. As most of us are Germans, we named our settlement Strasburg, after the city of that name, in the old country.

We are delighted with the climate, have plenty of good water, and for health, we believe this locality can not be surpassed. When we arrived here, it was very heavily timbered;

and have been engaged, principally, in saw milling—having two mills at this place, and one about three-fourths of a mile further south.

What farming and gardening we have done, proves to us that the soil is adapted to the raising of anything that can be grown in Indiana, with the addition of cotton, and the sugar cane, and judging from what we have seen within a few miles of our place, the country is as well adapted to the raising of the grape, as any part of France, or Germany.

We have not done much, yet, towards getting emigration from the North; what few we have, are well pleased, and say they wish they had known of this country before.

We expect to have quite an increase to our numbers, in the course of another year.

Very respectfully,

STRASBURG AGRICULTURAL & MFG. CO.,
Per CROWELL.

The counties north of where we are standing—Shelby, Jefferson, Walker, Blount, and Winston, occupying the plain, or elevated plateau, representing in Alabama the mountain regions of Pennsylvania, Virginia, and Tennesse, with a crop producing record as given in the statements, and tables above, is wanting, waiting *only for labor*. The Tennessee Valley of North Alabama, with only 35 per cent. of negroes, and they, as has been seen, rapidly growing less; and with a crop production in 1870, of nearly 60 per cent. of that of 1860, must soon have its 40 per cent. of uncultivated, and its 60 per cent. of unprofitably cultivated soil, covered with an industrious and thriving population of white men. Notice here, I use the word *must*, and I mean it, and I will demonstrate fully that this sentence applies to every part of Alabama, before I am through writing this book. People go no where from sympathy, but they go everywhere from interest. Establish a civil government in Alabama, such as we have had for the last one or two years, and maintain it here, and we will be wanting in labor but a short while. The soil of Alabama, when properly cultivated and tilled, is, as has been fully shown by our figures of comparison heretofore given, superior to any State in this Union, in the production of agricultural values, except Louisiana, Mississippi, and California. The presentment made by the census of 1860, of the crop products, and crop values of the different States and sections

of our country, was a true statement, and compiled from materials obtained at a time when the soils of all the States were cultivated alike, and equally well. The presentment made by the census of 1870, is likewise, a true statement of the soil productions then. But unexplained, and scattered all over the civilized world, as they have been by those interested in peopling other sections of our country, as representing truly, not only the productions of our soils then, but as the actual, and comparative capabilities of our soils, for the production of agricultural values, they have done the South an almost irreparable injury. These statements have been upheld, and fortified by the circulation of colored maps, all over the civilized world, under the sign manual of our Nation, giving the capabilities of the soils of Alabama, and the other Southern States, as taken from the census of 1870. Tables have also been prepared, representing the capabilities of our soil, and hung up, and scattered everywhere, under the same great authority, until now, the soils of Georgia, Alabama, and Mississippi, and the other Southern States, in the production of agricultural values, are represented in these maps, and reports constructed under the authority as above, in language like the following:

"For the ten Southern States, the average production is $267, while even the six sterile New England States produced $490 for each farmer."

The above is but two lines, of ten thousand pages, costing the Government millions of dollars—of persistent misrepresentations of the soils of the South, and still our people have been so much occupied with *their political affairs*, that no man has been found to undertake the exposition and explanation of these damaging misrepresentations. I can not believe that it is done by design; but whether done so or not, it has the full effect of placing our soils before the new generations of men, who have sprung up here, and elsewhere, in the last sixteen years, as the most worthless, and the least capable of producing agricultural values, of any part of our great country. If I have time, and can get pen, ink, and paper, and any one will print what I write, I will set Alabama, and my native State, Georgia, right.

We have now shown what Alabama was, what she is, and

we must next enter the region of prophecy as to what Alabama will be. I have shown that the labor here, now, is utterly worthless, as the basis of our agricultural prosperity, and the great question with Alabama now, is to get a labor which can, and will cultivate her land properly, as it was before the war. To get this labor is an easy matter, if we go at it right.

We will now proceed to give the reasons why an immigration of white men *must come* to Alabama. The same reasons and arguments will apply to all the Southern States, as well. They will come here, not by force or the arbitrary commands of power; *but interest, and the force of circumstances* will bring them here.

We have now fully demonstrated, by figures and facts that can not be doubted or gainsaid, that the soils of Alabama, when properly cultivated and tilled before the war, exceeded, or were richer in the production of crop values, than those of any of the States of the Union, except Mississippi, Louisiana, and California.

The matter of climate and health will be treated of hereafter, and it will be seen that on this important question Alabama stood before the war, and will stand again when systematic industry returns to her soil, equal to and even with the great agricultural States of our Union. The negro question will, if left to itself, be solved by natural causes alone, and the political significance of the negro being lost, he will follow now the laws inherent in his constitution; and increasing as he does slowly, in comparison to the whites, where emancipated all over the civilized world, he will cease soon to be an object or cause of apprehension in Alabama.

The population of the United States was 38,558,371 in 1870. In 1880 it will be, at only the usual rate of increase, 49,125,882. The increase now from births and immigration is one million a year. In other words, there are one million new people in the United States each year wanting homes. One hundred years ago our population was three millions, settled along the Atlantic from Georgia to Massachusetts. This three millions in one hundred years have filled up and occupied the territory from the Atlantic to the 97th meridian, or 150 miles west of Missouri, and would have gone farther west

but for reasons I will hereafter give. They have crossed the vast deserts, and taken up and occupied every available acre of cultivatable land in the far west, and are now going southward into Texas, and northward into Minnesota. There is a wide difference between the annual increase of three and fifty millions. The annual increase then was only 900,000 for each decade—90,000 for each year; of fifty millions, is fifteen millions for each decade, or one million five hundred thousand for each year. I have said there are over one million wanting homes each year. In four years, or by 1880, there will be one and a half millions. *Where must these new millions go to find agricultural homes?* It has heretofore been the custom to go west; but, reader, if you will follow me attentively through a few pages of facts, I will convince you that this custom has ended, or will end in four years at farthest.

There is no agricultural country unoccupied now by white people west of the 98th and 100th m., or the middle of Kansas, the point which agricultural civilization has already reached. Great rail roads are built and running across this region from the Missouri river to the Pacific ocean; still the emigrants in Nebraska are hugging closely the Missouri river, and don't go out on the plains. The solid ranks, as they marched out from the borders of Missouri into the adjoining rich lands of Kansas, have come to a dead halt at the 99th meridian, and only a few stragglers have gone farther west to battle with the grasshoppers, drouth, and impossible agricultural soil without irrigation. Great rail roads are running here, too, and still the emigration does not go forward. Passing south through the Indian Territory to Texas, we find the agricultural people halting at the meridian line of 100. Going north into Dakota, we find the agricultural limit at 98. What is the matter? Why this straggling, this halting, this crossing over to the Pacific—this northward movement to Minnesota, and this movement south-west to Texas? The answer is found in the fact, and I stand ready to prove it any and every where, *that beyond the margin just mentioned there is no country unoccupied now where an agricultural civilization can settle and live.*

Open the maps we studied when boys forty years ago, old men of the United States, and you will find this region char-

acterized, and called on these maps, as the Great American Desert. It was a true statement then, *and is true now.* Since then I have traveled all over this region, in every State and Territory from the Missouri river to the Pacific ocean, except Dakota, Montana, Arizona, and New Mexico, and *it is true from the testimony of an eye witness.* Nearly thirty years ago I met the Mormons at Salt Lake, hunting all over the Territory of Utah for little spots of cultivatable soil. Thirty years ago I stood around and defended the women and children of Iowa and Illinois, as they hurried across this treeless, rainless, uncultivatable desert of nearly two thousand miles, and settled down in the Willamette Valley in Oregon, and in the Sacramento Valley in California, the only strip of life-giving soil (and that on an average of from five to fifty miles wide) that lies between the 98th and 100th meridian and the Pacific ocean. There are spots, and only spots, in this great area of 1500 miles square, where a possible agriculture may be carried on without irrigation. In Utah, only 1105 square miles, or an area about equal to a single county in Alabama, possible to be cultivated successfully, even with the irrigating water to be found in that vast territory. In the Rocky Mountains, beautiful valleys, or parks as they are called, are found in Idaho, Montana, Colorado, and New Mexico—of small area, however, but looking beautiful when not covered with snow. But even here cultivation can becarried on only by irrigation of the soil, and the seasons are so short that nothing except the quickest growing vegetables can be raised. Around Denver, in the State of Colorado, by intercepting the few rivers that flow east from the Rocky Mountains before they have been drunk up by the hot sands of the barren plains, a small area has been reclaimed and is profitably cultivated, though irrigated at great cost and expense. In New Mexico and Arizona, with the exception of the narrow valleys of the Rio Grande and the Gila—and they cultivatable only by irrigation—the whole country is, agriculturally speaking, a barren waste.

In Nevada, the hot winds, the alkili salts, and the entire absence of irrigating streams—even if any soil at all fitted for cultivation was found—precludes any idea of agriculture. The agriculture of Oregon is summed up in the Williamette

Valley and a few other spots only, where irrigation can be had. In California, the Sacramento Valley is well situated for agriculture; but here, as elsewhere, the hot winds and no rains for seven months in the summer render agriculture impossible, except in a few counties in the coast range and around the bay of San Francisco, without extensive and costly works of irrigation. Some parts of this extensive region are covered over with a species of bunch grass—notably Arizona and the north-western part of New Mexico. But this, when when once eaten off, as is estimated, requires five years for a renewal, and sheep will, by nibbling at the roots in the dry sand, destroy it altogether. This country is truly a desert, compared with the poorest of the States now occupied by the farming people of the United States. There is nothing but gold and silver and the religion of Mormons to keep agricultural white people for a moment in this vast, treeless, waterless, inhospitable region of our country.

There is a small strip of country west of Missouri, Iowa and Arkansas about one hundred and fifty miles wide, extending into and through the State of Texas, of cultivatable soil now fast being settled up by emigration. But what is this little strip of half filled country to the new millions that are seeking homes every year. In less than four years this little strip will all be taken up, and then, and even before then, the ever moving and home hunting millions must start in some other direction. "There is now no other unoccupied agricultural territory, except that made vacant in the South by the failure of free negro labor, and they must and will come here." As before stated, I am fully prepared to make good all the above statements and facts. Others have traveled over and examined this vast region and described it more ably than I can, but they have written in great books and volumes not accessible to the general reader. All, without a single exception, all pointing to the same end that the country west of the 98th and 100th meridian, excepting only a little strip in Oregon and California from ten to fifty miles wide, is unfit for any agricultural civilization. The Yellowstone and other branches of the Missouri may be used at great expense for the purposes of irrigation. The various branches of the Columbia river east of the Cascade moun-

tains may be used in the same way to reclaim a part of this sterile desert in Idaho or Oregon. The Platte, the Arkansas, and the Canadian may also be utilized in this way for a limited distance where they first leave the snowy mountains, and before they reach the hot and dry plains of Kansas, Colorado and Nebraska. The Rio Grande is utilized now, and has been for the last two hundred years, for the last drop that can be spared. But what does all this mean to a people who have been accustomed to receive their rain water for their fields without cost or expense at the Divine will and from the Heavens. It means this and nothing more and nothing less to our agricultural people, or their descendants, who wish to go to this country ; they had better stay where they are, and turn the Ohio, the Tennessee and the Alabama rivers over the tops of the high hills and mountains here and by this means add something to the production of the soil naturally better suited for agriculture. As a proof of my assertion I will give a few brief extracts from authors well known, and whose fitness and integrity cannot be doubted. The evidence on the affirmative of this subject is found any and everywhere in the reports of the commissioned officers of the army of the United States, and the contrary is found no where except in the interested reports of the bond sellers, and others having a personal interest and not responsible to any one as to what they say or represent.

The Agricultural Bureau of our government has gone to the extreme limit of truth in its treatment of this subject. Yet the natural evidence found everywhere here, is so plain and so well defined, that all these strained arguments and trashy statements are swept away like chaff before the wind, by the clear, concise and ponderous evidence found everywhere in the reports of the great officers commissioned especially by our government to examine into and report upon this subject. I scarcely know what part or how much of this evidence to quote. Gov. Houston, the present Governor of Alabama, has agreed to examine my book, and if possible, I will submit the mass of testimony now before me on this subject for his endorsement. It will then be law, at least in Alabama, and as my object in writing this book is as much for the information and satisfaction of the people of

Alabama, as for anything else, my purpose will have been accomplished. Our people had better cling to their homes in Alabama, for the time is coming, *in fact is here now*, when the chance of getting agricultural homes in the new west will have ended. I say this to my people in Alabama with a full and personal knowledge of the whole subject. Believe me, for it is true.

I will quote from the reports of Maj. Gen. Emory, Prof. Blake, Gen. Humphries, present Chief of Engineers, and from the United States Secretary of War and other authentic documents of a more recent date.

I will quote first from the report of Gen. Emory, of the United States army, to the Secretary of War. It will be remembered, that many of the officers of the United States army, were specially engaged, for years before the war, in the examination of this region, from the borders of Missouri, Iowa, and Texas, to the Pacific ocean, and traversed every portion of this extended area, from Mexico on the south, to British America on the north. Their reports are comprehensive, dignified, stately, and *true*. In this synopsis I am limited as to space, and have already overrun it, and can quote only short extracts, but I pledge the reader, that no extracts will be selected for a purpose, or will the general opinion of any witness, be perverted or changed, by any extracts I may publish.

Gen. Emory says: "A general description of the topographical features of the country, along the boundary between the United States and Mexico, (traversing the whole breadth of the continent,) cannot be made comprehensive, without presenting, in the same view, the great outline of the continent itself. * * * * * * * The most remarkable and apparent difference between this region and those of the States of the Union generally, and that which, perhaps, creates as much as any other one cause, the difference in its botanical and geological productions, *is the hydrometic state of the atmosphere;* for, while the plants and animals assume new forms in life, the crust of the earth, the soil, and the rocks, are everywhere familiar, and have many types, indeed, fac-similes, over the rest of the American continent."

"It is very arid; but this is also the character of all the country north of the tropics, and west of the 100th meridian of longitude, until you reach the last slope of the Pacific—a

narrow belt, seldom exceeding two hundred miles in width, and sometimes not more than ten. The zone extending from the Gulf of Mexico to the Pacific, embracing the boundary, contains a large proportion of arid lands; yet this dry region is, perhaps, narrower on the line of boundary, than on any portion of the continent north of it, within the limit of the United States, and is occasionally refreshed by showers in the summer season, and so far presents an advantage over the arid belt to the north. * * * * * *

It is the slope toward the sea, of this range of mountains (the coast range,) which forms the western boundary of the arid region, and is, in my judgment, the only continuous agricultural country west of the 100th meridian. There are many detached valleys and basins affording facilities for irrigation, where the cereals, the vine, and all the plants which conduce to the comfort of man, are produced luxuriantly; but they form the exception, rather than the general rule, and are separated by arid plains or mountains. * * * * *

The remaining mountain feature of North America, is the Appalachian. * * * * * * * * *

Persons familiar with its character, as most who read this memoir are, will scarcely be able to comprehend, still less to believe, the character given to the western and less favored regions, described in this report."

"In a fanciful and exaggerated description given by many of the character of the western half of this continent, some have no doubt been influenced by a desire to favor particular routes of travel for the emigrants to follow; others by a desire to commend themselves to the political favor of those interested in the settlement and sale of those lands; but much the greater portion by estimating the soil alone, which is generally good, without giving due weight to the infrequency of the rains, or the absence of the necessary humidity in the atmosphere to produce a profitable vegetation. But be the motive what it may, the influence has been equally unfortunate by directing legislation and the military occupation of the country, as if it were susceptible of continuous settlement, from the peaks of the Alleghanies to the Pacific."

"The term 'plains' is applied to the extensive inclined surface reaching from the base of the Rocky Mountains to the shores of the Gulf of Mexico and the Valley of the Mississippi, and form a feature in the geography of the western country as notable as any other. Except on the borders of the streams which traverse the plains in their course to the Valley of the Mississippi, scarcely any thing exists worthy of the name of vegetation. The soil is composed of the disintegrated rocks, covered by a loam an inch or two in thickness, which is composed of the exuviæ of animals and decayed

vegetable matter. The growth on them is principally a short but nutritious grass, called Buffalo grass, (Sysleria Dictatordes). A narrow strip of alluvial soil, supporting a coarse grass and a few cotton-wood trees, marks the line of the water courses, which are themselves sufficiently few and far between.

"Whatever may be said to the contrary, these plains west of the 100th meridian are wholly unsusceptible of sustaining an agricultural population, until you reach sufficiently far south to encounter the rains from the tropics.

"The precise limit of these rains I am not prepared to give; but think the Red River is, perhaps, as far north as they extend south of that river." * * * *

"Whatever may be the opinion of persons interested in the more northern lines of travel and projected railway routes to the Pacific, we can not shut our eyes to the existence of this desert, on any line of travel south of the South Pass, in north latitude 42°. I am also of the opinion, that this desert within the limits of the United States is narrower and more easily passed over by a railway immediately north of the Mexican boundary than on any parallel to the north of it. An attentive perusal of the report of Governor Stevens will show that even north of the South Pass vast tracts of desert and arid regions were encountered in the same longitudinal zone, which, added to the rigors of the climate, form an almost insurmountable barrier to the project of opening through those regions any great highway of travel, either by railway or wagon road, between the Atlantic and Pacific States.

"The full power of the government has been directed towards establishing posts and opening these northern lines of travel; yet we have, within the last few months, seen Fort Laramie, Fort Pierre, and, I believe, even Fort Kearney, abandoned by the government, owing to the absolute sterility of the soil, and the impossibility of inducing settlements, or raising even vegetables necessary for the use of the troops.

"The records of the Quartermaster General's office show the long continued efforts which the government has made to establish these posts as *nuclei* for settlers, and the utter failure to induce settlements, and make the surrounding country at all conducive to the support of the troops.. The idea of carving out States from that portion of the American continent between parallels 35° and 47° and the 100th meridian of longitude and the crest of the Sierra Madre, is a chimera. The example of the Mormons is often cited to prove the capacity of the country to sustain population. They occupy an oasis in this great desert, and the power to sustain even the population they have is by no means established beyond a doubt. On two occasions the grosshoppers were very nearly

eating them out and producing a famine; and I am very sure, if it were not for their peculiar institutions, which can not bear the light of civilization, they could not be induced to remain in their isolated and desert home.

"We learn from the report of Captain Beckwith, United States army, how very circumscribed is the area of land which is now susceptible of cultivation in this desert, and the fact that families sometimes go a great distance from the settlements for the advantage of obtaining a few acres of ground susceptible of cultivation. (See page 65, vol. I, Pacific Rail Road Report.) When the truth comes to be admitted, I think it will be found that the upper valley of the Rio Bravo, embracing New Mexico and a small portion of western Texas, is the only tract of land, within the limits mentioned in the preceding paragraph, where a body of land is to be found susceptible of sustaining any considerable population. And yet we see, since our occupation in that Territory in 1846, the population has increased but little, if at all."

General Humphreys, present Chief of Engineers, collating these reports, says:

"The important characteristic feature of Captain Pope's route (32°), dwelt upon with so much force by him, is the extension westward of fertile land to near the head-waters of the Colorado." * * * * * *

"At this point (98½), the change to uncultivatable land is complete, excepting in the river bottoms, which are more or less fertile." * * * * "The land now cultivated in New Mexico (35th parallel) is estimated at two hundred square miles, and the land cultivatable now vacant, exclusive of the vast region occupied by the Navajoes, Maquis, Tanians, and wilder tribes of Indians, at about 490 square miles, giving a total of about 700 square miles. Only one-fifth of the bottom land of the Rio Grande, capable of irrigation and cultivation, is now under culture.

"The valley of the Colorado, between the mouth and the 35th parallel, contains 1,600 square miles of fertile soil capable of irrigation.

"In neither soil, climate, productions, nor population, nor from any other cause, does it possess advantages superior to other routes, favoring the construction and working of a rail road.

"The soil west of the meridian of 99° is, under the present meteorological conditions, uncultivatable, except in limited portions of river bottoms and small mountain valleys; these latter, from their great elevation, being better adapted to grazing than agricultural purposes.

"This description is completely in accordance with the ge-

ological formation and meteorological conditions, the former from the meridian of 99° west being apparently tertiary, excepting in the high mountain passes."

In speaking of the region north of the South Pass, Captain Stanbury says:

* * * * * "The only large body of cultivatable soil, found on this route (38th and 39th), west of the 99th meridian, is that occupied by the Mormons, on the western foot-slopes of the Wahsatch Mountains, forming the eastern border of the Great Basin. The following description of this fertile tract is taken from Lieut. Beckwith's Report upon the route, near the 38th and 39th parallels of north latitude:

"The western range of the Wahsatch mountains, standing on the eastern border of the Great Basin, is continuous, extending north and south over five degrees of latitude, from the vicinity of Little Salt Lake to north of Bear river, broken only by the passage of the Sevier, Timpagos, Weber and Bear rivers. Its altitude, at 3,000 feet above the general level of the country, is quite uniform; but occasionally it falls down to 2,000, and at a few points rises to 4,000 and 4,500 feet.

"Its western slope is very steep—often inaccessible—presenting generally a very formidable barrier to the entrance of a rail road into the Basin from the east. Many small streams descend from it; and as far as its disintegrations have been deposited at its base upon the alkali plains of the Basin, it forms a rich soil.

"The line of deposits is narrow, and not continuous, varying in width, where it is found from two or three miles to ten or twelve at a few points—as opposite Utah and Great Salt Lakes, where it occupies the entire space from the mountain to the lake shores. It is to this narrow belt of land that the Mormon settlements are almost exclusively confined, the isolated settlements being upon similar deposits in smaller valleys at the base of other mountains, the small mountain streams, upon which these mountain deposits are richest and chiefly exist, being used for irrigation. Respectable crops of wheat and oats are produced, and barley has been cultivated to some extent; but corn does not flourish well. The grass of this district, and of the higher mountain valleys, is excellent; and potatoes and other roots are produced in abundance, and of a superior quality.

"The area of this body of fertile soil, susceptible of irrigation by the construction of suitable works, is estimated by Lieut. Beckwith at 1,108 square miles."

The area of the different localities are estimated as follows:

Eastern shore of Great Salt Lake, from Bear River to Great Salt Lake City—square miles	350
Valley of the Jordan river	374
Valley of Tuilla, west of Quirrah mountains and east of Cedar mountains	204
Total on Great Salt Lake proper	928
Upon the borders of Utah Lake	180
Total (as above)	1,108

"About one-tenth of this area is susceptible of irrigation without the construction of costly works, and is tilled by the Mormons—27,000 in number—who eagerly seek for and occupy small tracts of cultivatable soil, if sufficiently large to support a few families, even though at great distance from the main settlement."

Gen. H. continues—"On this route, as on others, from the 98th to the 99th deg. meridian westward, to the western slopes of the Sierra Nevada, a distance of about 1,400 miles, the *soil is generally uncultivatable*, the exception being the comparatively limited area of the Mormon settlement, and an occasional river bottom and mountain valley of small extent."

ROUTE NEAR 41ST AND 42D PARALLELS.

"East of the Rocky mountains, the plains are of the same character as those described for the 38th and 39th parallels: *uncultivatable west of the 98th meridian.*"

47TH AND 49TH PARALLELS—CHARACTER OF COUNTRY, &C.

"The character of country along the route from St. Paul to Seattle may be summed up as follows:

	Miles.
From St. Paul to Little Falls, fertile soil	109
From the Mississippi river at Little Falls to Dead Colt Hillock, the soil is fertile—the distance is about	166
From that point to the crossing of Riviere a' Jacques, near the 99th meridian, the change from fertility to an uncultivatable condition takes place	66
Thence to the crossing of Sun river, a distance of 752 miles, the prairie is uncultivatable; the river bottom of the Missouri in part, those of Jacques river, Mouse river, and of other streams, possessing a cultivatable soil	752
We have then a mountain region of 404 miles, a well wooded district to the Spokane river, with mountain valleys of partly cultivatable soil, and prairies of the same character	404

(The sum of the areas of cultivatable soil in the Rocky mountain regions being about 1,000 square miles.)
From the Spokane river to the crossing of the Columbia, ten miles above Fort Wallah-Wallah, over the barren plain of the Columbia..... 142
Thence to the Cascades, an uncultivatable, though grazing district, about..... 192
Thence to Seattle, on Puget Sound, over cultivatable land, about..... 194

Total..... 2,025

"So that of the 2,025 miles from St. Paul to Seattle, on Puget Sound, we have only a space of about 535 miles of fertile country; the remaining 1,490 miles being over *uncultivatable prairie soil, or mountain land*, producing only lumber, with the limited exception of occasional river bottoms, mountain valleys, or prairie."

I will give next some extracts from the report of the Secretary of War of the United States, based upon the reports of the army officers, and upon the resume above given by Gen. Humphreys, of their reports.

ROUTE NEAR THE 47TH AND 39TH PARALLELS.

"From the foregoing sketch, it will be perceived that the lines of exploration must traverse three different divisions or regions of country, lying parallel to each other, and extending north and south through the whole of the western possessions of the United States. The first is that of the country between the Mississippi and the eastern edge of the sterile belt, having a varying width of from 500 to 600 miles. The second is the sterile region, varying in width from of from 200 to 400 miles; and the third, the mountain region, having a breadth of from 500 to 900 miles.

"The concurring testimony of reliable observers had indicated that the second division, or that called the sterile region, was so inferior in vegetation and character of soil, and so deficient in moisture, that it *had received, and probably deserved, the name of desert*. This opinion is confirmed by the recent explorations, which prove that the soil of the greater part of this region is, from the constituent parts, necessarily sterile; and that of the remaining part, although well constituted for fertility, is, from the absence of rains at certain seasons, except where capable of irrigation, as uncultivatable and unproductive as the other.

"This general character of extreme sterility likewise belongs to the country embraced in the mountain region. From

the western slopes of the Rocky mountains to the 112th meridian, or the western limit of the basin of the Colorado, the soil generally is of the same formation as that lying east of that mountain crest, mixed, in the latitudes of 35 and 40 deg., with igneous rocks; and the region being one of great aridity, especially in the summer, the areas of cultivatable lands are limited. The western slopes of the highest mountain chains and spurs within this region being of a constitution favorable to fertility, and receiving much larger depositions of rain than the plains, have frequently, in their small valleys, a luxuriant growth of grasses, which *sometimes* clothes the mountain sides; and where the wash is deposited on mountain stream or river bottom, the soil is fertile, and *can be cultivated, if the elevations are not too great, and the means of irrigation available.* Such mountain valleys and river bottoms exist upon all the routes, and the difference in the areas found in the different latitudes is not sufficiently great to be of any consequence in determining the question of a choice of a route. It is probable that all the routes are nearly on an equality in this respect. The cultivatable valleys of the Rocky mountain region, near the route of the 47th parallel, do not probably exceed an area of 1,000 square miles; though there are extensive tracts of fine grazing lands. In this latitude, the great, sterile, basaltic plain of the Columbia, and the barren table lands, spurrs, and mountain masses of the Cascade Range, principally occupy the space between the Cœur de Alene mountains and the main chain of the Cascade system. In this area, where the rocks are principally of igneous origin, there are occasional valleys of cultivatable soil. The western slopes of the Cascade mountains descend to the borders of the Puget Sound.

"On the routes of the 41st and 38th parallels, in the region under consideration, the only large body of soil capable of productive cultivation, by the construction of suitable works for irrigation, is that of the Basin of the Great Salt Lake, estimated to be 1,108 square miles in extent, about one-tenth part of which being susceptible of cultivation, without the construction of irrigating canals, is now cultivated by the Mormons. Here, also, are extensive grazing lands."

"The great elevated plain of the Rocky mountains, in latitude 41 degrees and 42 degrees, and that of latitude 38 degrees, called the San Luis valley, are covered with wild sage; the narrow border of grass found upon the streams being the chief, almost the only, production capable of supporting animal life. The slopes of the mountains bounding them are covered with grass.

"The plains of the Great Basin, whose greatest width (500 miles) is in latitude 41 deg. are, with the exception heretofore

stated, entirely sterile, and either bare, or imperfectly covered with a growth of wild sage. When a stream or lake is found in this desolate region, its immediate borders generally support a narrow belt of grass and willows; the former being also found on the mountain slopes, where occasionally a scattered growth of cedars is likewise seen. Water is found on the mountain side. The predominating rocks, from the Wahsatch mountains to the Sierra Nevada, are of igneous origin. In the southern portion of the Basin the granite rocks are more abundant than the volcanic."

"On the routes of the parallels 35 deg. and 32 deg. the valleys of the Pecos, Rio Grande, Gila, and Colorado of the West, contain the largest areas of fertile soil, capable of irrigation and cultivation. That of New Mexico is estimated at 700 square miles, exclusive of the regions occupied by Indians, of which 200 square miles are now under cultivation. Here the grazing land is of very great extent, the table lands, as well as the mountain sides, being covered with grass. The valley of the Colorado of the West, between its mouth and the 35th parallel, contains 1,600 square miles of fertile soil, which can be irrigated from the river."

"The plains south of the Gila in its lower course, and that west of the Colorado, extending to the Coast Range, called the Colorado Desert, as well as the contiguous portion of the Great Basin, are bare and exceedingly sterile in their aspect, and closely resemble each other."

"The soil of the Colorado desert, and much of this as well as other parts of the Great Basin, is, however, favorably constituted for fertility, but the *absence of the quickening*, essential element, water, leaves them utterly unproductive."

"West of the Coast, Sierra Nevada, and Cascade mountains, the country is better watered than that just considered, and the soil being mostly well constituted for fertility, is productive in proportion to the yearly amount of precipitation, *and means of irrigation*."

Route near the 47th and 49th Parallels.

"The information upon the character of soil upon this route does not admit of satisfactory conclusions to be deduced. It is sufficient, however, to show that in this latitude, as in that of the Arkansas, *the uncultivatable region begins about the 99th meridian*."

Route near the 41st and 42d Parallels.

"On this route, as on others, from the 98th or 99th meridian to the western slopes of the Sierra Nevada, a distance of 1,400 miles, *the soil is uncultivatable*, excepting the compara-

tively limited area of the Mormon settlement, and an occasional river bottom and mountain valley of small extent."

ROUTE NEAR THE 38TH AND 39TH PARALLELS.

"*The soil west of the meridian of 99 deg. is, under the present meterological conditions, uncultivatable, except in limited portions of river bottoms, and mountain valleys; these latter, from their great elevation, being better adapted to grazing than agricultural purposes.*"

ROUTE NEAR THE 35TH PARALLEL.

"Near the meridian of 99 deg., the *change from fertile land to uncultivatable is complete, excepting in the river bottoms, which are more or less fertile.*"

ROUTE NEAR THE 32ND PARALLEL.

"From the report of Capt. Pope, it would appear that the belt of fertile land which lies on the west side of the Mississippi throughout its length, extends on this route nearly to the headwaters of the Colorado of Texas, in about longitude 102 deg.—that is, about three degrees further west than on the more northern routes. The evidence adduced in support of this opinion is not, however, conclusive; and until it is rendered more complete, the *fertile soil must be considered in this, as in other latitudes, to terminate about the 99th meridian.* Thence to the Pacific slopes this route is over uncultivatable soil." * * * * * *

It will be seen from the above, from the Secretary of of War, and also from the report of General Humphreys, compiled from the official reports of officers engaged in making the various explorations from the southern boundary of our country to British America, that west of the 98th and 100th meridians, with the exception, perhaps, of 1,000 square miles, in the Rocky mountains, on the line of the Northern Pacific R. R., and 1,108 square miles in Utah, and some 700 square miles in New Mexico, and a narrow strip along the foot of the Rocky mountains, all cutivated by *irrigation alone, there are no bodies of cultivatable lands until we reach the Willamette and Sacramento valleys, on the Pacific coast.*

As was heretofore stated, nearly thirty years ago I traveled over and examined this whole region. I was then over twenty-one, and had, as I thought, my senses about me, and my opinion formed then was precisely that of the great officers of our Government, quoted above, and such was the opinion of every living soul, who, at that time, had travelled over and examined this region—that, with the exception of

spots, and narrow strips along the rivers east of the Rocky mountains, and the parks, as they are called, and a few valleys in the midst of the Rocky mountains, and at an elevation too great to admit of the successful growth of any but the quickest growing vegetables. The little narrow strips in New Mexico, Colorado, Idaho, Utah, Nevada, Oregon, Dakota, Montana and Wyoming, all cutivatable only by irrigation, and the water for irrigation almost absolutely wanting, and impracticable for the purpose, *there is no cultivatable land west of the 98th and 100th meridian, except the narrow valleys, from five to fifty miles wide, along the Pacific coast.*

Some five or six years ago, my attention was atrracted, in New York, to some extensive and elaborately gotten up land maps, and reports of the various projected railway lines in this region. I was surprised and astonished at the statements made here, of the agricultural fitness of the various regions referred to. I felt, also, a degree of pleasure, in the hope that, perhaps, I might have been mistaken in my opinion of this region. At that time, every white man in Alabama, owing to the unrest, and social and political darkness and uncertainty that prevailed everywhere in our State, was anxious to get away, and find a home for his family, where such terrors did not exist. Being of a migratory nature, and having but little left now to move, but my wife and children, I entered immediately into a re-examination of this subject; and I say here, to my friends in Alabama, that I found that large numbers of people had moved into and settled in this region, in the last thirty years, mainly engaged in mining, and that a few had large stock ranches immediately along the rivers; but, in an agricultural point of view, it was as sterile and inhospitable as I found it thirty years ago. The experience of the few who had attempted agriculture, had but added to and demonstrated the truth and integrity of the reports heretofore made to our Government, by its commissioned officers, and others specially entrusted with the examination of this subject. I will refer, first, to a few recent authorities on this subject, and finally to the census of 1870. Many a laudatory land lying scheme in the west has been ruined by the stern logic of these figures and facts, as given by the Federal census. I introduce first, the skeleton geological map,*

*Map not ready for this edition.

published in this volume; a copy from that prepared by the distinguished scientists and explorers, Profs. Blake and Hitchcock, for the census of 1870. I have endeavored to have it faithfully reproduced; if it is not, the original can be seen in the census of that year. A mere inspection of this map will show that the top soils, west of the 98th and 100th meridians, differs, generally, from those east. But this does not tell the whole story. It will be seen, that in spots such as that immediately around Denver, and along the valley of the Rio Grande, the limestone, and the cretaceous, the most fertile of the formations of the United States, appear on the surface. Where water can be brought on these soils, and where the frosts or hot winds, do not interfere, vegetation will grow, luxuriantly, always. But plant even in Alabama, an acre of either of these rich soils, covering two-thirds of the area of the whole State, and admit upon it, even the gentle rays of our own summer sun, and expend upon it all the arts that labor and science can bring to bear, and exclude from it only the God-given showers of rain that fall everywhere here, and you will have an idea of what these soils will produce, where they are in the plains and mountains of the west. These little sample spots, as seen on this map, watered *only* by the ingenuity and industry of man, and producing crops almost equal to Alabama, Illinois, and New York, have furnished the material facts upon which were based the glowing, and grandiloquent reports, as seen by me in the city of New York. I regret my inability to furnish, here, a table of rain fall, all over this region, for the last thirty years. It can easily be seen at the Smithsonian Institute. I will give the following table of rain fall, east of the 97th meridian, in the United States, or the meridian of Austin and Fort Worth, Texas; Junction city, Kansas; Yankton, Dakota, and the Red river of the North, or the meridian where the annual dryness, or rain deficiency begins. It is only an exception, if rain falls west of this meridian sufficient to raise crops, as we will see from the following additional table, which is a fair and average statement of the rain fall, and the manner in which it falls, all over this vast area, from the 97th meridian to the Pacific ocean:

TABLE OF THE AVERAGE RAIN FALL

In the United States East of the 97th meridian, or meridian of Austin and Fort North, Texas, Junction City, Kansas, Yankton, Dakota, and the Red River of the North, or the western boundery of Minnesota.

STATE OR SECTION.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Spring	Summer.	Autumn.	Winter.	Whole Year.
Eastern Kansas	0.48	0.05	1.76	1.62	3.46	2.35	3.25	8.58	4.30	7.29	0.59	0.73	6.84	14.18	12.18	1 26	34.46
Eastern Texas	1.82	0.64	2.13	4.78	3 40	2.93	4.25	3.48	1.45	7.14	3.52	1.55	10.31	10 66	12.11	4.01	37.09
Eastern Nebraska																	31.47
Montgomery, Alabama, 1873—U. S. Signal Service																	63.79
" " 1874 " " "																	51.93
" " 1875 " " "																	58.16
" " 1876 " " "	to Aug. 17, 47.3															(estimated)	60.00
" " Average																	58.47

Table of the rain-fall West of the above meridian to the Pacific Ocean.

STATE OR SECTION.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Spr'ng	Sum'r.	Aut'n.	Wintr.	Whole Year.
Kansas—Eastern Belt	1.35	1.73	2.01	3.15	4.82	4.94	5.03	4.30	3 36	2.56	1.98	1.84	9.99	14.26	7.90	4.92	37.07
Middle Belt	0.79	1.75	1.12	2.12	3.18	2.69	3.40	1.79	3.29	1.38	0.65	1.45	6.42	7.87	5.33	3.99	23.61
Western Belt	1.54	.31	.12	1.77	2.53	1.58	2.10	1.57	1.19	1.16	0.14	.31	4.47	5.25	2.41	1.18	13.34
Dakota—Average																	14.09
Denver, Col	1.15	1.70	0.70	2.80	0.35	0 52	0.51	0.12	2.85	0.68	0.54	0 73	3.85	1.15	4.07	3.58	12.65
Utah	0.00	0.00	1.60	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.70	1.30	1.98	0.00	0.70	1.30	3.98
Deer Lodge, Mon	0.64	0.05	1.11	1.47	3.55	3.85	0.28	0.68	1.62	0.68	0.54	0.73	6.13	4.81	2.84	1.42	12.65
Fort Yuma													.72	.27	1.30	.86	3.15
Fort Defiance													2.95	6.41	4.84	2.97	17.17
Dalles, O													2.63	0.42	3.78	6.98	13.81
Portland, O	4.85	4.30	4.30	4.30	1.95	1.95	0.20	0.20	0.45	0.55	6.05	4.40	10.55	2.35	7.05	13.55	34.30
Sacramento, Cal													12.11	7.01	0.00	2.60	21.73
California	3.77	4.24	2 99	1 87	1.03	0.01	0.00	0.00	0 20	0.54	2.36	4.93	5.89	0.01	3.10	12.94	21.94
Montgomery, Ala., U. S. Sig. Ser. average, 1873 to 1876, inclusive																	58.47

It will be seen from the above tables, that the spring and summer rains *east* of the 97th meridian, are generally equal to the fall and winter, and that rain falls regularly all through the crop growing season. Nebraska, Kansas and Texas are also included in this table, but the record in the first table is taken *only for eastern Nebraska, Kansas,* and that part of Texas east of Fort Worth. Though as you approach the meridian from the east, there is more or less uncertainty in having rain enough to make a crop, still, by planting largely of wheat and other winter and early growing crops, agriculture can be safely carried on this far west; but no farther, without irrigation, except immediately along the Gulf coast, where the rain region extends farther west on account of the moisture from the Gulf of Mexico.

We will proceed now to describe the other table, which is a record of a vast region, equal to nearly half of the United States. Commencing at the border of Missouri, and going west along latitude 39, we will show the characteristic rain-fall features to the Pacific ocean, including Oregon and California. From 94 deg. 44 min. to 96 deg. 40 min. is practically the rain-fall region of Kansas, as given heretofore. It will be seen, that there is a deficiency in the late autumn, winter, and early spring *rain-fall* here, that militates against the production of winter wheat, as can be seen by reference to the Kansas Agricultural Report. From 96 deg. 35 min. to 99 deg. 20 min., or nearly three degrees further west, the rain-fall is only 23.61 inches, or two-thirds that of the eastern belt of Kansas, less than two-fifths that of Alabama, and expresses the same winter deficiency of rain as the eastern belt. The strange anomaly is seen in the wheat production of Kansas, (raised almost entirely in the eastern belt) of 1,314,522 bushels of *spring wheat,* and only 1,076,676 bushels of *winter wheat*; whilst in the State of Missouri, immediately adjoining Kansas on the east, the spring crop is only 1,093,905 bushels, and the winter crop 13,222,021 bushels. It would appear that a country so bare of rain as Kansas would plant winter wheat altogether; but the rain deficiency here even extends into the winter, and they plant both spring and winter wheat, so that if they fail, from a drought or deficiency of rain in one, they

may succeed in the other. This vast section, extending from the 100th meridian to the western border of Kansas, has an average rain-fall of only 13.34 inches, or about one-third that of the eastern belt, and one-fifth that of Alabama. It sprinkles here every month in the year—spring 4.47, summer 5.25, autumn 2.41, and winter 1.18 inches. The rain-fall here suits neither wheat, corn, nor any other crop. The Legislature of the State of Kansas, through its Agricultural Bureau, has had the manhood to say so, in the following language, referring to three divisions of the State :

"The *eastern belt* will admit of most diversified grains and grasses, and is most admirably adapted to stock raising.

"The *middle belt* is well adapted to stock raising. Spring wheat will stand about an equal chance with its winter rival. It is the experience of the farmers of eastern Kansas that there is greater danger of winter than spring droughts, so far as this important crop is concerned. If it is too dry, the raking prairie winds will blow the soil from the roots, which then wither and die. *The eastern belt has no moisture to spare during the winter months*, and while the difference between the eastern and middle belts is only .93 of an inch, it is enough to equalize the two crops. Spring grains of all kinds, except in the eastern half of this belt, will take preference to corn and potatoes. Flax and broom corn will succeed well.

"The *western belt* is a good country for stock. It is probable that flax will succeed there, and in some localities in the bottoms, spring wheat and other small grains; *but to go there*, to engage in diversified industries, will only result in disappointment and loss. *It is a fraud upon the immigrant and his family, and a positive injury to the good name of the State.* If the immigrant locates upon the western border understandingly, and engages only in such industries as the soil and climate will warrant, he will succeed."

We have here, under the highest authority of the State of Kansas in 1874, a confirmation of the figures I have given.

The next section, from 103 deg. to 105 deg., reaches Denver, at the foot of the Rocky mountain, and the rain-fall is 12.98 inches. It will be seen, by reference to the geological map, that we have reached here, at Denver, a little strip of the rich soils of Alabama, and here, by extensive works of irrigation, a splendid agriculture is carried on—truly an oasis in an impracticable desert. The circumstances all combine to make irrigation a success. A rich soil, and at the very gate-

way of the mountains, intercepting easily the only rivers that contain any water in this region, before they reach the arid and parched plains between Dever and Missouri and Arkansas. Extensive mining operations are carried on here, and there is now, and has been for years, a full market for every thing produced from the soil.

Whilst here, I will insert an extract from Lieut. Wheeler's recent report to the government, on the subject of irrigation east of the Rocky mountains:

"As the dry season begins in June, and continues until autumn, all farming operations are entirely dependent upon artificial irrigation." * * * * * *

"The extent to which irrigation of the plains can be carried is now a question of much importance, and, having been formally presented in a message by the President, deserves at least passing reference here. These plains are not, as is commonly supposed by those who have not seen them, a vast level, broken only by occasional waves. On the contrary, the surface is exceedingly irregular, and though in the distance resembling a plain, it is in fact anything else, being much torn up by erosive agencies. *Only a small portion of this vast area can ever be cultivated by irrigation.* That which is available, lies along the larger streams and their tributaries, some of which *are now permanently dry*, and consists of the flood plains, and the older terraces rising above them. These present the level surface, which is essential to successful irrigation. Of such land, immediately available, it is estimated that Colorado, east of the mountains, has in all barely four millions of acres, or about six thousand two hundred square miles, an area scarcely larger than a strip extending from Denver to the New Mexico line, with a width of thirty miles. It might be possible, by extensive and very costly works, to double this area, but not more. Under such conditions, one can hardly fail to doubt the feasibility of enterprise to recover any considerable portion of Colorado by irrigation.

"Even were Colorado, east of the mountains, one unbroken plain, the difficulty would be quite as serious. To irrigate, one must have an abundant supply of water. As the rain falling on the plains is uncertain, in amount, it can afford no assistance, and the whole supply must be drawn from the mountain region. The problem, then, would be to irrigate, *in Colorado alone*, nearly sixty thousand square miles, with the water that falls on less than eleven thousand. Could this water be husbanded in such a manner as to lose none, this would not be impracticable, for irrigation is needed only from the beginning of June until, at farthest, the early part of

August; but such a husbanding is impossible. *A large part of the water precipitated upon the mountains never reaches the plains by the streams, and were irrigation fully carried on along the upper Arkansas and the upper South Platte, only a small portion would pass east of the mountains.* As it is, the Arkansas, where it issues from the mountains at Canon city, is very much smaller than at Pleasant Valley, only thirty miles above. More than this: The atmosphere on the plains is so dry, that the temperature frequently falls 40 degrees without inducing deposition of dew. It is clear that the loss by evaporation would be enormous. The porous soil would absorb an equal amount, and from these two causes not less than half the water entering the canals would be lost within sixty miles. The amount of water issuing from the mountains is not sufficient to bear this loss, and still supply what is needed for irrigation. *Careful calculation has shown that the water of all the streams would scarcely suffice to irrigate the whole country to a distance of thirty-five miles from the base of the mountains.* The Platte itself, though constantly receiving tributaries, diminishes in importance as it descends, until at Julesburg, during the agricultural season, it is comparatively insignificant." Would that I could quote more from this report.

We come next, to the mountain region in which are situated the celebrated, and much written about parks and the lovely little valleys from the head of the Yellowstone and the Missouri, to the Rio Grande. These parks and valleys are small in extent, and extend from British America along the Rocky mountains to the Rio Grande. Snow begins falling in September, and lays on the ground until the middle of May or the first of June, and only the quickest growing crops can be produced in these valleys, on account of frost. Even stock is driven out in the winter, and the rain fall is so little, during the season, that irrigation is necessary to raise crops any and everywhere. The record at Deer Lodge in Montana, and at Fort Defiance, will give the snow and rain fall, in these mountain valleys. We come next, to Utah, and the Great Basin, between the Rocky mountains and the Sierra Nevada and Cascade mountains, a region of no summer rains, and little at any time. The record is given as Utah in the table, and as the Dalles in Oregon, and at Fort Yuma, on the Gila. The total rain fall at Fort Yuma is 3.15, Utah 3.98, and at the Dalles in Oregon

13.81 inches. It is not to be wondered at, that this rainless region of 800,000 square miles, or a country nearly as large as all the Southern States from Maryland to Texas, should be characterized as a sterile, inhospitable, and arid desert. The rain fall is not sufficient in Winter to cool the earth, parched by the Summer sun, much less to start even a growth of vegetation. The small streams issuing from both mountain chains, furnish, through irrigation, the only hope for agriculture here, and after the hot winds and barren sands have taken their share, but little water is left for this purpose here. The next section across the Sierra Nevada and Cascade mountains, to the Sacramento and Willamette valleys, a distance of two hundred miles in length, from Mexico to British America, covering 300,000 square miles, as occupied by great mountains and rocks, a large portion perpetually covered with snow, totally and entirely unfit for any kind of agriculture, and can never be reclaimed. We come now, to the narrow valleys; the Williamette in Oregon, about the size of our Valley of North Alabama, constituting agricultural Oregon, and the Sacramento and Coast Range, constituting agricultural California, a little larger only in practicable, cultivatable area, *even by irrigation*, than the Prairie or Black Belt of Alabama. None of the fertile rocks of creation, as can be seen from the geological map, can be found here. But only the poorer tertiary, and alluvial soils are cultivated in these valleys. There is a peculiarity in the climate and rain fall of these valleys of the Pacific coast, that suits admirably the production of wheat. But this is the whole of their agriculture. The rain fall begins in Oregon, or rather in the Williamette valley, which is Oregon, in November, and continues until May, and in a small degree through May and June, and then everything is parched up. But Winter wheat is through then; corn and the other Summer crops keep up a straggling fight, and if *it happens* to rain more, they *succeed*, if it don't they *wither and die*.

"In California, it begins to rain in November, and ends promptly on, or before, the first day of May, and nothing grows afterwards, unless watered artificially. What I have written here, I have seen and felt myself, and *it is all true*. These last pages, and the geological map, are a mirror of the continent west of the 97th meridian, and within the limits of

the United States. Now, I would ask any Alabama farmer, which of these regions he would swap his country for. Could you make a crop in the middle belt of Kansas, with only 2-5ths the rain fall that we have here in Alabama? In the eastern belt of Kansas, I admit you could not be worsted much, as the soil is rich, and rain fall here is 34.46 inches, or 59-100, or more than one-half of the average rain fall of Alabama. You are warned by the Kansas State government, however, not to go to the western belt for agriculture, as the rain fall in this meridian, and east of the Rocky mountains, throughout the United States, in only 13.34 inches, or about 2-10 the rain fall of Alabama. What then? Have you got money enough to turn a great river, like the Alabama, all over the sandy deserts and mountains of Colorado, Montana, Utah, and Nevada, to get water for your stock, and to irrigate your hot, thirsty soils? Will you go to California and Oregon, where all the rich, and at present cultivatable lands, are owned under the Mexican or other grants and claims, and beg the poor privilege of cultivating other people's land, starve, or dig a great irrigating ditch? I have tried it, friends in Alabama, and I stalled at the first step; the absolute impossibility of getting timber for fencing my farm, to say nothing of the greater difficulty of getting water."

I could add page upon page, and volume upon volume, upon this subject, all testifying the same. But is this not enough? I will add a little more, of a more recent date. I regret my inability to get all the recent information on this subject. I will quote first, from the work of Mr. Spence, an Englishman of distinction, and from his endorsements, a man of real merit, comparing the British northwest with ours, he says:

"In comparing the advantages and resources of this great northwest of the Dominion of Canada, with the west and northwest of the United States, we must bear in mind that the rate of area absorbed by settlement in ten years in the Western States of America, was 170,955 square miles, and continually increasing; and that from the report of explorations, made under the auspices of the United States Government, of the region between the Mississippi and the Rocky mountains, the startling facts are revealed, that the *western progress* of its population has nearly reached the *extreme western limit* of the areas available for settlement; and that the whole space west of the 98th parallel, embracing one-half of the entire surface of the United States, *is an arid and desolate waste, with the exception of a narrow belt of rich land along the Pacific coast.*"

"That rich, but narrow belt, referred to, has already been blocked out with the prosperous States of California and Oregon, with a population of 1,200,000. This momentous fact was first announced by Prof. Henry, of the Smithsonian Institute, from whom we quote as follows: 'The whole space to the west, between the 98th meridian and the Rocky mountains, is a barren waste, over which the eye may roam to the extent of the visible horizon, with scarcely an object to break the monotony. The country may also be considered in comparison with other portions of the United States, a wilderness unfitted for the use of the husbandman, although, in some of the mountains, as at Salt Lake, by means of irrigation a precarious supply of food may be obtained."

It is not necessary to quote the detailed description of this American Sahara. The concluding words of Prof. Henry are more to our purpose. He says:

"We have stated that the entire region west of the 98th degree of west longitude, with the exneption of a emall portion of western Texas and the main border along the Pacific, is a country of comparatively little value to the agriculturist, and perhaps it will astonish the reader if we draw his attention to the fact, that the line which passes southward from Lake Winnepeg to the Gulf of Mexico, will divide the *whole surface of the United States into two nearly equal parts.* This statement, when fully appreciated, will serve to dissipate some of the dreams which have been considered realities *as to the destiny* of the western part of the North American continent. Truth, however transcends even the laudable feelings of pride and country, and in order properly to direct the policy of this great confederacy (the United States), it is necessary to be well acquainted with the theatre in which its future history is to be re-enacted."

Again, there is something almost appalling in the picture of the region bordering the northern Pacific in Dakota Territory, the northern boundary of which is the fertile belt of our North-west. It is presented in a letter to the New York *Tribune*, by Maj. Gen. Hazen, U. S. A., from which we select extracts, which should not fail to carry conviction to the most obtuse intellect. This officer has been stationed at a military post, at the mouth of the Yellowstone river, about two degrees south of our boundary line in longitude 103; and having been there for some years, he is in a far better condition to judge of the facts than the most expert and observant of transient visitors could possibly be. He gives for the first

time a glimpse of the barrenness and desolation of the route, which the *Northern Pacific Railway was to develop* in that region, which is inexpressibly shocking, and should act as a serious warning to emigrants and capitalists in Europe investing in United States railway lands. He says:

"For two years I have been an observer of the efforts, upon the part of the Northern Pacific Railroad Company, to make the world believe this section to be a valuable agricultural one, and, with many others, I have kept silent, although knowing the falsity of their representations, while they have pretty fully carried their point in establishing a popular belief favorable to their wishes.

"When reading such statements of its fertility as appear in the article entitled 'Poetry and Philosophy of Indian Summer,' in that most estimable periodical, *Harpers' Monthly*, of December, 1873,—in which are repeated most of the shameful falsehoods so lavishly published in the two years, as advertisements in the interests of that company, and perhaps by the same pen—a feeling of shame and indignation arises that any of our countrymen, especially when so highly favored with the popular good will and benefits, should deliberately indulge in such wicked deceptions.

"The theoretical isothmericals of Capt. Maury and Blodgett, which have given rise to so much speculation, and are used so extravagantly by those who have a use for them, although true along the Pacific coast, are not found to have been true, by actual experience and observations, in this middle region." * * * *

"The past season, as seen by meteorological report, has been exceptionally rainy and favorable for agriculture here, and the Post has, with great care, and by utilizing all the available season, made an extensive garden, with the following results:

"The garden is situated immediately on the river bank, about two feet above high water. Potatoes, native corn, cabbage, early-sown turnips, early peas, early beans, beets, carrots, parsnips, salsify cucumbers, lettuce, radishes and asparagus have grown abundantly and have matured. Melons, pumpkins and squashes have not matured. Tomatoes did not turn red. American corn (early) reached roasting ears. Onions, with wheat and oats, matured at Ft. Berthold, D. T., 150 miles below, on the Missouri river. I am told by those who have been here a long time, that this may be taken as a standard for what may be expected the *most favorable seasons on the immediate banks of the streams.* The native corn matures in about ten weeks from planting. It puts out its ears from six to eight inches from the ground, and has a soft white

grain, without any flinty portion, and weighs about two-thirds as much as other corn.

"My own quarters are situated on the second bench of the banks of the Missouri, about fifty feet above that stream, and six hundred yards away from it. And to raise a flower garden ten feet by forty, the past two years, has required a daily sprinkling of three barrels of water, for which we were repaid by about three weeks of flowers.

"The site of this post is supposed to be exceptionally fruitful, but I have before me a letter of Mr. Joseph Anderson of St. Paul, Minn., who was hay contractor at this post in 1872. His letter states that, in order to find places to cut the hay required by his contract that season, 900 tons, he was compelled to search over a space of country on the north side of the river twenty-five miles in extent in each direction from the post, or some 400 square miles, and there was none thick enough to be cut for as great a distance beyond. Respecting the agricultural value of this country, after leaving the *excellent wheat growing valley of the Red River of the North*, following westward 1,000 miles to the Sierras, excepting the very limited bottoms of the small streams, as well as those of the Missouri and the Yellowstone, from a few yards in breadth to an occasional water washed valley of one or two miles, and the narrow valleys of the streams of Montana already settled, and a small area of timbered country in northwest Idaho, (probably one fifteenth of the whole,) this country will not produce the fruits and cereals of the east, for want of moisture, and can in no way be artificially irrigated, and will not, in our day and generation, *sell for one penny an acre*, except through fraud or ignorance; and most of the land here excepted will have to be irrigated artificially. I write this knowing full well it will meet with contradiction, but the contradiction will be a falsehood. The country between the one hundredth meridian and the Sierras—the Rio Grande to the British possessions—will never be developed into populous States, for the want of moisture. Its counterpart is found in the plains of Northern Asia and Western Europe. We look in vain for those expected agricultural settlements along the Kansas and Union Pacific Railroads, between these two lines, and twenty years hence the search will be quite as fruitless. We have in Nevada and New Mexico fair samples of what these populations will be. My statement is made from the practical experience and observations of eighteen years of military service as an officer of the army, much of which has been upon the frontier; and having passed the remainder of my life a farmer.

"For confirmation of what I have said, I respectfully refer the reader to Gen. G. K. Warren, of the Engineer Corps of the army, who made a scientific exploration of this country,

extending through several years, and has given us our only accurate map of it; or to Prof. Hayden, for the past several years engaged upon a similar work. The testimony of Gov. Stevens, Gen. Fremont, and Lieut. Mullans, is that of enthusiastic travelers and discoverers, whose descriptions are not fully borne out by more prolonged and intimate knowledge of the country."

"Herr Hass, the agent of the Berlin and Vienna banks, sent out to examine the country, could easily say the country is good, as long as he advised his people to invest no money in it; and it is doubtful if that remark was based upon a sufficiently authoritative investigation of the country to merit the credence given it. Certianly it is incorrect. And especially valueless is the testimony of men of distinction of our own country, who are not agriculturists, but have taken journeys in the fruitful months of the year to the Red River of the North, to the rich valleys of Montana, or to the enchanting scenery of Puget Sound, except upon those particular points."

"*I am prepared to substantiate all I have here said, so far as such matters are susceptible of proof, but from their nature many things herein referred to, must to many people, wait the action of the great solvent—Time.*

"I have no personal feeling in this matter since, rather on the contrary, the rail roads in these western countries ameliorate the condition of troops serving here, but I would prefer to see these roads based upon honesty, and the needs of the country, commensurate with their cost. Nor can I see much difference in the man who, in business, draws a cheque upon a bank where he has no money, and selling bonds secured by lands which have no value."

"I will say to those holding the bonds of the Northern Pacific Rail Road, that by changing them into good lands now owned by the road in the Valley of the Red River of the North, and east of that point, is the only means of saving themselves from their total loss.

"W. B. Hazen.

"Fort Buford, D. T., Jan. 1, 1874."

We have here the statement of a commissioned officer of the United States army. Truth was a part of the ethics of the United States army, before the war, and I have no reason to believe it is not so still. The opportunities, education, and training of the commissioned officers of the army, fit them above all other classes of our people, for giving correct and reliable information on this, or any other subject entrusted to their care and examination, and *I again say it is*

true, from my own knowledge. I insert here a synopsis of a compilation by the same author, (Mr. Spence,) demonstrating and sustaining, by Blodgett and other eminent American official authorities, the following propositions:

"1st. That the country west of the 98th meridian, within the United States, is mostly a desert, made such by the absence of summer rains."

"2d. The soils are so much impregnated with salts and alkalies as to be destructive to vegetation; except for the sage of the desert, an emblem of an arid and sterile region."

"3d. The great variation in temperature, from 80 deg. to 90 deg. during the day, to the freezing point, and even below it at night, is another characteristic of that country."

"4th. The soils of those regions under discussion, where not saline, are so sandy and friable as to prevent the cultivatable grasses, and consequently the green pastures and meadows, from taking the place of the prairie grasses when these are plowed up."

I here insert two other extracts from Blodgett:

"These statements show that the region of summer droughts—the desert area—begins at the 97th meridian, a little west of the Mississipi, and extends from north to south over the whole territory of the United States, from the 49th parallel beyond the southern boundary of Texas. From this meridian, the 97th, this climatic defect—the want of rain in summer—diminishes eastward, but increases westward, rendering more than half the area of the United States either useless as an agricultural country, or very inferior to the country east and north of that region."

"The whole of the eastern slope of the Rocky mountains is still, generally, arid, and the loose soil and rapid evaporation dissipate the rains, and diminish the effect of the fall of any certain volume, much below that of any similar rain fall on the retentive surface, and soil eastward. On the upper plains of Texas, and over all the plains west of the 100th degree of longitude, irrigation is generally necessary to support cultivation which requires the summer for its growth, and in the valleys, nearest the mountains in the west, it becomes more decidedly so, than elsewhere."—Blodgett, p. 329–30."

From the geological report of Prof. Hayden, for 1872, of examinations of Dakota, Montana, Wyoming, etc., I find the following:

"The second climatological question relates to the rain fall. It is well known that on the east side of the plains, as in Minnesota, Iowa, Missouri, and Arkansas, the average annual rain fall is sufficient to supply the moisture necessary for the

production of the cereals and other agricultural products. On the other hand, it is almost as well known that irrigation is necessary at all points on the plains lying along the east base of the Rocky mountains. Therefore, it is evident that the boundary between these two regions—that of sufficient, and that insufficient rains—must be found somewhere between the east base of the Rocky mountains and the west lines of the States named. It becomes, therefore, very important to determine where this line is. It is true that the transition may be gradual and render it difficult to fix it with any degree of exactitude, yet it must be possible to determine it approximately. The importance of this will scarcely be appreciated by those who have not come practically in contact with this question; but the individual who has gone beyond this line and opened a farm upon the broad prairie, depending upon the rain fall alone to supply his crops, has learned by sad experience that knowledge, which ought to be supplied to the public. But land speculators and others, who are interested in settling up this portion of the West, are often too sanguine in their belief in regard to favorable climatic changes; or are regardless of the sufferings and hardships they cause, by a too favorable representation of this uncertain section."

Speaking of Dakota, the Territory west of Minnesota, the writer says: (Prof. Thomas Hayden's Geology.)

"This Territory has been so recently settled, except a small section in the southeast corner, that, but little can be said as to its agricultural prospects, save what we can infer from an inspection of its surface and soil, added to the slight knowledge we possess of its climate. And here the last item becomes important in this estimate, as it is known that the line of sufficient rain fall is found within its borders."

Detailing the difficulties in getting timber or coal for fuel, he says:

"It is true that coal can be brought in, but this will be a heavy tax on farmers of small means, who live far back on the prairies, and are exhausting all their means and energy to start a farm into active operation; yet this will probably be the *only method* of meeting this necessity, unless corn is used for fuel, or forest trees are timely planted and in sufficient quantity. What is said here on this point, also applies to portions of Nebraska, and, to some extent, to the southwest portion of Minnesota. I know there is in the mind of the farmer of the States, who has labored hard through the hot days of summer in plowing his corn, and in the fall in gathering and garnering it, a very strong dislike to the idea of using it for fuel; but the true method of testing this ques-

tion is to count the cost. If, for instance, sixty bushels of corn in the ear—about thirty shelled—will equal, as fuel, one ton of coal, (I do not know that this amount is correct; it is but a guess,) will it pay to sell this corn at twenty cents per bushel (shelled measure) and buy coal at $8 or $9 per ton, besides the hauling to and from a depot? It is a simple question of figures, not fancy, and it would be well if some one properly situated to do so, would give us some practical information on this subject."

He further says:

"In closing this brief account of the agricultural resources of eastern Dakota, I should state that, after carefully weighing all the data I have been able to obtain, together with my own observations, I am satisfied *that all west of James River Valley must be counted as in a district not sufficiently supplied with rain.* Taking all the records of the rain-fall which have been kept in the Territory for the five years from 1867 to 1871, inclusive, we find the average yearly amount to be only 14.09 inches less than half that of Minnesota, Iowa, or eastern Nebraska. And that this average is not far from correct, is shown by the fact that there is no very great variation from it in either of the years included—1867, 13.78 inches; 1868, 14.03 inches; 1869, 14.17 inches; 1870, 15.12 inches; 1871, 13.35 inches. The meteorological data, therefore, so far as obtained, corroborate the opinion I have advanced on this subject." Again:

"Although the country west of the second crossing of the Cheyenne is well adapted to grazing and pastoral pursuits, yet I am satisfied that the average rain-fall is insufficient for practical agricultural operations. There may be seasons when the supply may be sufficient to produce moderately good crops of the cereals, but I think these will form the exceptions instead of the rule. It is true, no sufficient experiments have been made to test this question, and it is due to the welfare of the Territory and those who are largely interested in this matter, that I should state that my opinion is not based upon direct experiments in this immediate section, and that the soil, as a general thing, is good; also, that it is very probable that the bottom lands along the streams will form an exception to this rule. I should also state that Mr. Roberts, the Chief Engineer of the Northern Pacific Railroad, expresses a somewhat more favorable opinion in regard to this section. He may be right, and I may be wrong; I only give my opinion, which is based on certain evidence which will be more fully set forth in my report on the Climatology of the West."

In speaking of Nebraska, he says:

"I am now satisfied that Platte Valley can produce crops

of the cereals without irrigation farther west than I had formerly supposed. Not that the amount of rain which falls on this valley is any greater than that which falls on the adjoining plains, but the moisture is longer retained." * * * * "While I am of this opinion in regard to this great valley, on the other hand I am now pretty thoroughly convinced that the sufficient supply of rains on the upper plains does not extend as far west as I had formerly supposed. For southern Nebraska, I do not think this can safely be placed any farther west than Fort Kearney, except along the immediate valley of Republican Fork, *and north of the Platte this line will probably bend considerably east.*"

From the report of the Bureau of Agriculture, I found substantially the same facts as above. The area of possibly cultivatable soils, by extensive works of irrigation, is somewhat enlarged. In Utah, it is estimated at almost double, or amounts to nearly 2,000 square miles, or about two per cent. of the whole area of the Territory. Wyoming appears to have a little larger per cent. of cultivable area. Colorado 6,000 square miles, as an extreme amount, and that only by utilizing, and using the last drop of water in the Arkansas and Platte rivers, as they issue from the mountains, *leaving them dry on the plains.* Nevada, New Mexico, and Oregon, and the rest of Oregon outside of the Williamette Valley, get worse the more they are examined and reported upon. There are fifty thousand square miles of cultivatable soil in the State of Alabama, upon which the rain falls everywhere sufficiently for all the purposes of agriculture. There are not fifty thousand square miles in all the territory in the United States west of the 98th and 100th meridians, excluding California, Oregon, and Washington Territory, as I know personally nothing of this Territory—that can, by any ordinary expenditure of money, be made equal in the production of agricultural values, to the 50,000 square miles covered by the territory of Alabama. Alabama must be a great and rich country. It is, when compared with the county above referred to, as we will now see, by referring to the agricultural records of the census of 1870 for this region, and comparing with Alabama in 1860, when her soils were properly cultivated and tilled. I place here a table of the crop products of all the States and Territories, in 1870, from the meridian of no summer rains to the Pacific ocean :

CENSUS, 1870.

States and Territories.	Population.	Value of Farms.	Value of Live Stock.	Number of Hogs.	Wheat.	Rye.	Corn.	Oats.	Tobacco.	Cotton.	Peas and Beans.
Arizona	9,658	$ 161,340	$ 143,996	720	27,052	.....	32,041	25	100	.....	3,417
California	560,247	141,240,028	37,964,752	444,617	16,676,702	26,775	1,221,222	1,757,507	63,809	34	380,010
Colorado	39,864	3,385,748	2,871,102	5,509	258,474	5,235	231,903	332,940	890	.....	7,509
Dakota	14,181	2,085,265	779,952	2,033	170,662	.....	133,140	114,327	.....	.....	456
Idaho	14,999	492,860	520,580	2,316	75,650	1,756	5,750	100,119	.....	.....	610
Montana	20,595	729,193	1,818,693	2,599	181,184	1,141	320	149,367	600	.....	2,414
Nevada	42,491	1,445,449	1,445,449	3,295	228,866	310	9,660	55,916	25	106	414
New Mexico	91,874	2,260,139	2,389,157	11,267	709,304	42	640,823	67,660	8,587	.....	28,856
Oregon	90,923	22,352,989	6,828,625	119,455	2,340,746	3,870	72,138	2,029,909	3,847	.....	12,575
Utah	86,786	2,297,922	2,149,814	3,150	558,423	1,312	95,527	65,650	.....	22	9,291
Wyoming	9,118	18,187	441,795	146	.....	.....	.....	100	.....	.....	4
Montgomery Co., Ala.	35,904	9,883,964	1,748,273	63,164	6,317	1,262	1,586,480	33,476	476	58,880	32,206

CENSUS, 1870—Continued.

States & Territor's.	Potatoes.	Buckwheat and Barley.	Sugar.	Molasses.	Wool.	Honey.	Butter.	Value of Animals Slaughterd	Hay.	Value of Manufactures.	Val. of Agricultural products.
Arizona	691	55,077	..	.....	679	.....	800	$ 277,998	109	.....	72,239
California	165,574	2,805,418	..	.....	11,391,743	294,376	7,969,744	49,856,024	551,773	301,491	23,086,893
Colorado	121,502	35,319	..	333	204,925	.....	392,940	252,394	19,787	57,658	661,207
Dakota	50,177	4,297	..	1,239	8,810	110	209,735	22,066	13,347	1,677	365,407
Idaho	64,534	72,316	..	.....	3,415	.....	114,480	57,932	6,985	74,730	204,228
Montana	91,477	86,844	..	.....	100	.....	408,080	169,092	18,727	155,357	422,016
Nevada	129,249	296,222	..	3,651	27,025	363	110,880	104,471	33,855	2,329	646,818
New Mexico	54,030	3,886	..	1,765	684,930	.....	12,912	1,905,060	4,209	19,592	710,189
Oregon	483,680	212,381	11	30	10,806,638	66,858	1,418,373	1,365,737	75,357	87,376	3,161,171
Utah	323,808	49,295	..	67,466	109,018	575	310,335	11,712	3,180	175	1,876,031
Wyoming	617	.....	..	.....	30,000	.....	1,200	173,382	27,305	56,891	18,414
Montgomery Co. Ala.	235,233	1,209	..	80	18,448	10,662	16,798	336,915	469	9,997	3,264,170

It will be seen, that the population of all these States and Territories, east of the Sierra Nevada and Cascade range of mountains, and west of the region of deficient rain-fall 97°, is 329,566, present and accounted for, besides hundreds of thousands tramping all over this barren region trying to ascertain for what purpose it was created. The soldiers and Indians taken care of by the government, and fortune hunters unenumerated, would swell the number of consumers to 500,000 souls in 1870. New Mexico has been settled and cultivated for over two hundred years, and has now over one hundred thousand enumerated people, scattered along the valleys of the Rio Grande, dependent entirely for agricultural support upon the water of that river, as much so as are the Egyptians upon the water of the Nile; and if the Rio Grande fails, as it does sometimes, a famine is the result. This Territory produced, in 1870, crop values to the amount of only $710,185, or less than any half dozen townships in Montgomery county, Ala. Utah has been settled for 30 years, and, as we have been told by the best authority, agriculture was their chief and only business until of late years; and every available acre has been fully occupied, irrigated and cultivated by this industrious people, of nearly one hundered thousand souls, besides an innumerable company of strangers to be fed. Yet the total value of this specially and fully developed Territory, as compared to Alabama, is scarcely half, in 1870, of that of the single county of Montgomery in 1860. I know that crop products in all this desolate region *sell* for more than they did in Alabama in 1860, but that is just what I am driving at. If the grain crops, in a country producing *nothing but grain*, sell for a greater price than in countries where grain is only a secondary product, and produced only for a support, the agricultural surroundings must be at fault, *and they are.* Leaving out the innumerable company of strangers and stragglers, their per capita crop productions in 1870 were only $1,876,031, or about one-half of that of the county of Montgomery, Alabama, in 1860; and yet we call this country an oasis in a desert—Nevada, a State full fledged, with Senators and Representatives in Congress, for —— years. They must have had people, or they could not have been a State; and these people must have been like other people, and had to be

fed. They were also isolated, and cut off from the Williamette and Sacramento valleys, the only life-giving soil in the far west, by mountains ever and always covered with snow, and separated by vast arid deserts, from the rain country of Iowa and Missouri; and yet their total crop productions, including hay or wild grass as the largest of all, amounted in 1870 to only $646,818, or less than one-fifth that of the single, and not exceptional, county of Montgomery, Alabama, in 1860. Colorado, also, a State now, and figuring in the census largely in hay or wild grass, cut and cured in their mountain parks, impracticable for agriculture on account of frost, and fed away in winter to keep cattle from starving and dying in this inclement winter climate, produced in 1870 only $661,207 worth of agricultural products, or one-fifth of the agricultural products of the single county of Montgomery, Alabama. Do you not begin to shake a little, on my above stated proposition, that the soil of Alabama is worth intrinsically more for the production of agricultural values, *and always will be*, than the whole of this region of one thousand miles square? You will do so, when you see it as I have. It is unnecessary and useless to cumber this paper with a further comparison of the crop products of this region. We are told by Major General Hazen that every agricultural spot in the northern part of this section is taken up and occupied now; and we are told by the Agricultural Bureau of our government that it is a matter of great satisfaction to know that this vast region is now (1870) capable of perhaps sustaining their mining population. They must have learned, like the Irishman's horse, to live without eating—as I see no other way of sustaining them by the agriculture of this region, as fully detailed in the census of that year, and repeated in the statistical department of every agricultural report since.

The products of the soil of Montgomery county, Alabama, in 1860, if turned into money, will buy in Kansas City, Mo., to-day, more of each and every article of agriculture, than all these States and Territories produced in 1870, *and will produce even this year*. Nebraska is nothing, and never will be, in an agricultural point of view, when compared with such countries as Alabama. The agricultural capabilities of the

unsettled parts of Kansas have been fully defined heretofore, and are nothing. There remains only Oregon and California, or rather the Williamette and Sacramento and Coast Range Valleys of California, to speak of now. Washington Territory, as heretofore stated, I know nothing of, and care nothing for. Look upon the geological map prepared by Prof. Blake, a published here, and you will see a little yellow spot, or rather two little yellow spots, in the western part of Oregon, the Williamette and Umpqua Valleys. You will find the same yellow spots in southern Alabama, indicating soils such as are found in Baldwin, Conecuh, and the southern part of Pike counties, in this State. The rocks, the water, and the soils are identical—no better, no richer, and no poorer, than are found in the same yellow spots in the map in Alabama, indicating the same soils. Yet you are told to leave Alabama and go to Oregon, and get good lands, good water, and good health. I have drank water in Oregon, and I have drank the same water in Alabama. I have had bilious fever in Oregon, and the same fevers in Alabama; and they came from the same causes.

We will see now how the soil products of these valleys compare with those of Alabama. I would compare them with the same kinds of soil in Alabama, such as we classify as poorer soil here, but the South & North Alabama Railroad, at whose instance I am writing this book, does not touch any of these soils. I will continue the comparison, then, with the counties tributary to, and along that great railroad. It will be seen from the last table, that the crop values of the whole State of Oregon in 1870, measured by the same standard, are only $3,171,161, or less than that of our single county of Montgomery, Alabama, in 1860; and by an inspection of the detailed census reports, it will be seen that nine-tenths of all her crop values are raised in the Williamette and Umpqua valleys, or the little yellow spots on the map; and here *her agriculture always will be*, unless by the expenditure of millions upon millions by future generations, the Columbia river is carried over and across mountains and plains, and used to irrigate her otherwise barren and desolate soils.

We come now to California, the garden spot of creation, according to newspaper and other reports published by and

endorsed by the Agricultural Bureau of our nation. I hardly know how to treat this great subject. Buncombe, Munchausen, and all the dead writers of fiction are scarcely outdone by these statements, so endorsed by our national bureau of agriculture, on the subject of Calfornia agriculture. I will talk now to my own people of Alabama, as I know I will never be believed by the world of outsiders, who have been persistently stuffed with this theatrical nonsense under the sign manual of our government. California is a wonderful country—the most wonderful in the United States, or in the world. What nature has done for this country, she has done on a large scale, and is peculiar, well defined, and sharp. I lived once in this State, and voted for the free constitution of the State, and I know its principal features well. The gold formations were the richest in the world, and are peculiar to California. The agricultural features are also peculiar in climate, productions, and soils. If the reader will place before him the map heretofore referred to, I will describe first, her soils, the ground work of her agriculture. In my forthcoming book, I have copied largely from the reports of Prof. Blake Prof. Newberry, and others detailed especially by our Government, years ago, to examine and report upon this region. I will attempt, with the aid of the map, a description myself, and in as few words as possible. As I have traveled over, and seen the whole of it, I can perhaps exemplify, and better adapt it to the uses of this work. Only the deep and light colored yellow soils, representing the tertiary and alluvial, and the green color representing the cretaceous, have any agricultural value in California. The tertiary, the poorer soils of Alabama, and alluvial, represent really all of the agricultural soils of the State. The cretaceous, or rich soils of Alabama, represent mostly the Coast Range mountains. These little, long, narrow, deep, and light yellow strips and spots of the Coast Range, represent so many valleys or patches of soil, called rich, in this country, and cultivated by the Spaniards all over, for nearly two hundred years. These valleys and spots represent the Coast Range agriculture as it is called. The oblong area of deep and light yellow, on the map, represents what is called the Sacramento valley; about fifty miles wide and three hundred and fifty long. It will be

seen, that the Sacramento river runs south, and the San Joaquin runs north, nearly through the middle of this valley, and unite, and run out to the sea, through the Bay of San Francisco. The Bay of San Francisco breaks boldly through the Coast Range of mountains, and this break has a most important effect on the climate, and agriculture, immediately around the Bay of San Francisco. Along, and near the rivers, on either side, and notably in the Delta, where they enter the bay, appears a light yellow shade, representing the alluvial, or soil washed here from all the rocks of California. This shade of light yellow extends southward, beyond the head of the San Joaquin river, and spreads out around the Tulare Lake, and is called Tulare Valley; an isolated portion of the great Sacramento Valley, about fifty miles wide, and ninety miles long, having no outlet to the sea. The waters of the great rivers that run into Tulare Lake, are here evaporated and drunk up by the hot and dry winds that traverse this region. The alluvial is the richest soil of California, whether coming from the cretaceous of the Coast Range, or the tertiary of the plains in the valleys, or the granite of the Sierra Nevada. The alluvium from the Coast Range is of course richer than that from the Sacramento Valley, or from the Sierra Nevada, and is found mainly in the Coast Range valleys, and renders them immensely rich, almost equal to the black lands of Alabama. It will be noticed, that there are no rivers, and but one or two small creeks, running from the cretaceous or richer formation on the west side of the Sacramento Valley, into the Sacramento or San Joaquin rivers; but they come every few miles, in torrents, in the winter, from the east or Sierra side. The greater part of the alluvium of this valley, is, consequently, much poorer than that of the little valleys of the Coast Range, coming altogether from the rich cretaceous rocks of California; and they are, therefore, more productive than the alluvium coming from the Sierra Nevada, or the great tertiary plains that make up the Sacramento Valley. In making the examination, as heretofore stated, excited by the glowing crop reports of this great western region, I came across, among others, a statement of California agriculture, prepared by Mr. J. Ross Browne, and copied into, and pulished in the report of the

National Bureau of Agriculture, for 1873. The Commissioner says:

"Mr. J. R. Browne contributes *an exceedingly valuable paper* on the subject of 'Reclamation and Irrigation.' As an illustration of the progress of agriculture in the State, he says that in 1849 the actual yield of gold in California was $10,000,000; in 1850, $35,000,000; in 1851, $46,000,000; in 1852, $50,000,000; in 1853, $57,000,000; since that date it has gradually decreased to an annual average product of about $20,000,000. During the years named there was imported from the Atlantic States and South America, most of the supplies necessary for the support of the population. Contrasting this state of affairs with the agricultural products of the past year, Mr. Browne says:

"'The total value of the wheat, oats, hay, wine, wool, fruit, butter, cheese, and hides produced in California in 1872, is estimated at $75,000,000, of which our exports will probably exceed $50,000,000. The wheat crop alone reaches about $25,000,000, being an excess of $5,000,000 over our gold yield; and the total of our agricultural products exceeds by about $10,000,000 the entire yield of the precious metals throughout the United States. These astounding results have been produced by the hard labor and individual energy of our farming population, numbering in the *aggregate less than twenty-four thousand souls.* When we consider that as late as 1860 the total area of land in cultivation was only 937,133 acres, and that in 1871–72 it reached 3,653,183 acres, our progress seems incredible.' And yet, how little has been done! California contains an aggregate area of 120,947,840 acres, of which not less than 89,000,000, including swamp and tule lands, capable of reclamation, are suitable to some kinds of profitable husbandry. Of these over 40,000,000 are fit for the plow, and the remainder present excellent facilities for stock raising, fruit growing, and other branches of agriculture. This agricultural area exceeds that of Great Britain and Ireland, or the entire peninsula of Italy. Yet, England contains three hundred and twenty-two inhabitants to the square mile; Ireland two hundred and twenty-five, and Italy two hundred and fifty; while California, estimating its population at six hundred thousand, contains only a fraction over three, and of this infinitesimal population five-sixths live in cities, towns, and villages."

Mr. Browne is a gentleman of some prominence in the West, and was employed by the Government, in 1867, to report upon the minerals west of the Rocky Mountains, and certainly did not expect this thin, gauzy affair, *unexplained,*

to become a part of a State paper, and much less a State paper of our Nation, to be read all over the civilized world, with the Nation's seal of approval placed on it. I take no issue with the comments of the Commissioner of Agriculture, or with the statements of Mr. Browne, until he warms up with his subject and comes to the section as follows:

"These astounding results have been produced by the hard labor and individual energy of our farming population, *numbering in the aggregate less than twenty-four thousand souls*," *et sequitur*.

It will be seen that Mr. Browne states that a farm population of *twenty-four thousand agricultural souls*, without saying whether they were old or young, male or female, big or little souls, produced and cared for agricultural values to the amount of $75,000,000, or $3,125 to each living agricultural soul. If they are big, male souls, it is ten times the amount produced in Alabama or Illinois at any time before the war. If they are mixed agricultural souls, it is a still greater wonder. In looking over the census reports for 1870, I found that 46,636 persons were engaged in agriculture in California in 1870 *between the ages of 16 and 60;* and of this number only 283 were females—cultivating then only 2,468,054 acres—and in 1872, the date he is referring to, 24,000 souls cultivated 3,683,183 acres, or 151½ acres to each soul, or twice as many as were cultivated by *46,253 grown men* in 1870; and still the United States of America signs this statement and circulates it all over the civilized world *as true*.

After getting through with the above wonderful statement, Mr. Browne says:

"*And yet how little has been done!* California contains an aggregate of 120,947,840 acres, of which not less than 89,000,000, including swamp and tule lands capable of reclamation, are suitable to some kind of profitable husbandry. Of these, 40,000,000 are fit for the plow, and the remainder presents excellent facilities for stock raising, fruit growing, and all other branches of agriculture."

We see here that three-fourths of the area of California is put down as adapted to some kind of profitable husbandry, and 40,000,000, or one-third of the whole, *is now ready for the plow*. I will discuss the last part of this proposition first, about the millions now ready for the plow. On page 381 of

the same report is copied another quotation from Mr. Browne. Speaking of the importance of reclaiming the swamp or overflowed lands, he says:

"It would be of comparatively little use to reclaim from overflow the swamp lands of the Sacramento or San Joaquin valleys, *without providing at the same time an efficient system of canals and ditches for irrigating them during seasons of drought.* The low lands have an advantage in retaining their moisture to a later period in the season than the uplands; but experience shows that their productiveness is materially effected by drought, and that no reclamation is perfect which does not include the means of irrigation. The swamp lands in the Delta of the Sacramento and San Joaquin are very favorably located in this respect."

Mr. Browne here fully answers his first and second propositions. If it is of comparatively little use to reclaim lands daily overflowed (as much of these lands are by the tides) without providing for their being irrigated, of what value is this 40,000,000 acres of treeless arid, barren plains which constitute the larger portion of the Sacramento valley and of the Colorado desert, as it is called by all army officers. He must go into the desert to get his 40,000,000 acres flat enough to be ready for the plow. Where the hot winds and no rains fall, as can be seen from the table—as that of Fort Yuma of only 3.58 inches a year—dessicates and destroys not only any vegetation planted, *but the very soil it is planted on.* His 89,000,000 proposition goes with the above. He winds up with the following:

"This agricultural area exceeds that of Great Britain and Ireland, or the entire peninsular of Italy. Yet England contains three hundred and twenty-two inhabitants to the square mile, Ireland two hundred and twenty-five, and Italy two hundred and fifty; while California, estimating its population at six hundred thousand, contains only a fraction over three; and of this infinitessimal population five-sixths live in cities, towns and villages."

I can't see how any man could make this statement, with a full knowledge that it might reach the eye of Prof. Blake, Prof. Newberry, or some other distinguished man who knows it is *only a play upon words.* He argues here, and compares population, productions, and area, with Italy, England, and Ireland, as if the whole Territory of California was, by any

means, capable of being cultivated; when the fact is, as is well known, that by no system of possible or probable irrigation, within the next hundred years can, or will 10,000,000 acres be reclaimed, irrigated, or cultivated in California. The very statement he afterwards makes, in regard to the six or seven millions of acres of cultivatable lands being open to settlement in the Sacramento Valley over twenty years, and occupied, on account of the want of irrigation, by only two or three thousand agricultural souls, tells the true condition of nine-tenths of the possibly cultivatable area of California. This statement, and others like it, excited me for a while, but when I marched up to, and dug down into the subject, I found it nothing but sand.

I have troubled the reader with the discussion of this subject here, in order that he might see a sample of the thousand and one publications put forth and circulated all over the world as official, and otherwise, for the purpose as stated by Gen. Hazen, of influencing immigration and the sale of bonds. Such statements as these do no country any permanent good, except that the immigrant from abroad generally buys his ticket to his point of destination in the United States, and when he gets there, *he is there.*

As was heretofore stated, I was once a citizen of California, and examined it all over, and I found that the rivers Sacramento and San Joaquin, in finding an outlet to the sea, had washed away the mountains of the Coast Range, and the rich, cretaceous, black soil of that broken mountain had settled in all the valleys and on all the plains around the Delta and the Bay of San Francisco; and their influence is such, that in a crescent or half circle around the Bay of San Francisco, with the city of San Francisco as a centre, are found nine-tenths of the black or only rich soils in the State. All the eastern plain of the Sacramento Valley, except immediately along the streams and around Stockton for a few miles (where are found the black lands), are composed of a coarse, sandy, gravelly, thirsty, and poor soil, similar to that found in the pine barrens of Alabama. The black lands are rich beyond measure, equal to the richest slough lands in Alabama. But they cover a small area in the State. The wheat crop of California is enormous; but if the reader will follow me patiently through

one or two pages, I will show him that it is produced, in any quantity, *only in the alluvial black lands above referred to;* and any agriculture of any extraordinary value will always be carried on on these black lands. I was a farmer, or rather attempted to be a farmer once in California, on the bottom lands of the Merced river, near the middle of the San Joaquin Valley. The soils—coarse, sandy, gravelly—were as rich here as any where else in the State outside of the black lands referred to above; and had the advantage of a beautiful, clear, never-failing river running always over and through them; but it was always a matter of doubt to me, whether agriculture would pay here, even with irrigation. Seeing the reports lately of agriculture here, I went to the figures of the census of 1870 for information, and looking along the agricultural columns for my county of Mariposa, I found she produced of wheat, in 1870, only 4,275 bushels; of corn, 455 bushels; of oats, 350; of barley, 8,153; and of potatoes, 1,812 bushels—*about the value of the crop of a small farmer in Montgomery county in 1860.*

This was all for a population of 4,872 white people, besides Chinamen and civilized Indians. I found also the following note: "Mariposa county—Township 1, also includes 372 Chinese, and 7 Indians; Township 2, 115 Chinese; Township 3, 383 Chinese, and 26 Indians; Township 4, 214 Chinese and 1 Indian, or a total of 1,084 Chinese, and 34 Indians;" or a sufficient number of Chinese voters, if naturalized, to control the county. I concluded I would look a little farther, and see what had become of my neighbors, in Merced and Fresno counties, on the great San Joaquin river and valley. There was some land on the Merced, Mariposa, and other streams, near their entrance into the San Joaquin, or the San Joaquin itself, that I thought would produce well without irrigation. I again went to the records for information. Merced and Fresno counties cover this valley for nearly ninety miles, with a breadth in the valley of nearly sixty miles. Yet, these two counties produced, in 1870, only 237,927 bushels of wheat, 750 bushels of oats, 161,311 of barley, 18,386 of corn, and 32,170 of potatoes. 5,400 square miles, or more than one-half of this great desert looking, treeless, much talked of and written about valley,

produced in 1870 values to the amount of only $275,028, or about as much as was produced in 1860 within the sound of the clock, in the steeple of the capitol, in the city and county of Montgomery, Alabama. Here, again, my youthful genius was right, and so were the reports of our great army officers, sent out to investigate this matter. Millions upon millions of bushels of wheat and other crops, are produced in California. Where does it come from? I have not yet looked at the figures; but I know where it comes from, and any one else can know if he will only examine the splendid and accurate geological maps, made over twenty years ago, by the officers of our Government. There is a little strip of rich land around Stockton, and between Stockton and Sacramento, on the east side of the Sacramento river, and up that river, in spots, above Sacramento, for miles. But the great bulk of the productions of California are now, where they were 200 years ago, and ever will be, around the delta of the rivers, and in the old Spanish settlements, and in the little valleys between the Coast Range and Pacific ocean. We will see by an examination of the facts, whether I am right or not. In 1870, California produced 16,676,702 bushels of wheat, and 8,783,490 bushels of barley. The two principal, in fact only, agricultural staples, in the State. Of corn and oats, the two next, she raised respectively 1,221,222, and 1,757,507 bushels. Of this amount, four-fifths, or 13,180,094 bushels of wheat, 5,986,209 of barley, and 1,473,638 of potatoes, were raised within a circle or half circle of 100 miles around San Francisco. This circuit takes in Sacramento, Stockton and Monterey; and extends north to the southern line of Colusi and Butte counties in the Sacramento valley, and south to the southern boundary of San Joaquin county, in San Joaquin valley, embracing an area of 16,000 square miles, including the Bay of San Francisco, and the tules or marshes of the Delta of the San Joaquin and Sacramento, or about ten or twelve thousand square miles of soil, including the mountains inclosing the valleys. The remainder of the Sacramento valley, about one hundred miles in length, including Butte, Nevada, Colusi, Tehamah, and Shasta counties, producing only 1,182,910 bushels of wheat, 890,000 of barley, and 27,582 of potatoes. We have heretofore seen how insignificant are the

agricultural productions of Mariposa, Merced, and Fresno counties, lying south of San Joaquin county, and covering ninety miles of this valley. From the report of Prof. Blake, and from my knowledge of the Tulare and Kern Lake counties, I thought that, perhaps, something might be produced here, without irrigation. But in this I was mistaken, as these two counties, covering over one hundred miles of the broad valley of California, produced in 1870, only 67,365 bushels of wheat, 111,386 of barley, and 17,255 of potatoes, or a crop value too small to find anything in Alabama, in 1860, to compare it with. Here we have one hundred and ninety miles of the southern end of this valley of California, or over 9,000 square miles, that with a gold market in sight, produces now, actually less than any one of a dozen townships in our county of Montgomery, Ala., in 1860. The one hundred miles in the northern end of the valley made a better showing; but the whole 5,000 square miles, with the county of Colusi, in fact a part of the Delta and Coast Range country thrown in, produced agricultural values to an amount less than one-half that of our county of Montgomery, in 1860. You see, then, my friends in Alabama, that notwithstanding the current literature of the day, all is not gold that glitters, in California. The question of actual agricultural productions in California, then, is reduced to a circuit around San Francisco, the Delta, and Coast Range counties, as above stated.

We will now see how the crop productions in the richest part of the State compare, in money value, with those of our State, when her soil was properly cultivated and tilled, as the soil of California now is. Take two of the richest counties in the State—Allameda and Santa Clara. The farm valuation of the one being $16,747,770, and of the other $12,072,722, or a total of $28,770,492, or nearly three times that of our county of Montgomery. Calculate the value of their farm productions, as found in the compendium of the United States census, in 1870, at the same prices as for the county of Montgomery, Ala. One dollar per bushel for wheat, their leading staple, and the rest in proportion, and we have an aggregate of money value, for the agricultural productions of these two counties, of $2,631,776, *or only four-fifths of the value of the crop of the county of Montgomery, Ala., in 1860.* The Cali-

fornia counties have the advantage of ten years growth, in the comparison of the values of the soil products of these States. The Californian lost none of his property or labor, as the results of our war. His fences, his vineyards, his orchards, and his thousand and one little ornaments and comforts remained, and have continued to grow. While everything that was found on our soil, at the end of the war, property, labor, everything, was run over and destroyed; and we have left now, *only our souls and our soils.* The one I am attempting to comfort, and the other I am attempting, in these pages, to defend. As stated in the beginning of this division of my subject, I am making an analysis of the agricultural actualities of the State of California, with no desire of undervaluing or underrating her worth. She is a great and rich State, and if the ideas and arguments I am now attempting to make, should prove fallacious and void in their effects, and the people of Alabama can not be encouraged to stand longer in the breach, but give over to further ruin and decay, this, the richest in the natural elements of wealth, of all of the great States of this Union, with my household and my hopes, I will rejoin again my old friends in California.

The agricultural actualities of California are small when compared with those of Alabama, in years gone by. But her possibilities through irrigation, are great. I see now, that her people, as I am now advising Alabamians to do, thoroughly understand their situation, and have begun to move in the proper direction for relief. The great want of California agriculture, is the quickening element of water. The fifteen or twenty thousand square miles of treeless and desert plains, that make up on paper, now, the agricultural district of this State, must and will be irrigated. The water is there, notwithstanding the experiments of Prof. Blake show a dessicating and evaporating property in the winds that traverse this region, truly astounding. Every square mile of this vast region, covered with verdure, will quench so much of the thirst of these insatiable winds, until after awhile, and in the course of ages of time, as man, by his power over matter, places on these plains the tender vegetable mould, and waters and moistens their roots, by his hand, whilst they oppose their delicate heads to the withering, scorching heat of these

winds, in their fierce attacks on the hitherto parched and incapable soil, this section of California can, and will be made the happy home of agricultural man. But this will take time, money, and labor. By turning the San Joaquin and Sacramento each to the foot of the Coast Range, for the purpose of watering the western portions of the valley, and using the many beautiful and everflowing streams, from the Sierra Nevada, in watering the eastern side of these plains, this whole valley can be brought under cultivation, and in no other way.

I will insert here only short extracts from Prof. Blake, on southern, and Lieut. Abbott, on northern California. They are in substantiation of the above.

Lieut. Abbott says of the Sacramento Valley proper:

"General Topography.

"There is a great similarity in the general topographical features of the whole Pacific Slope. The Sierra Nevada in California, and the Cascade Range in Oregon and Washington Territories, form a continuous wall of mountains nearly parallel to the coast, and from one to two hundred miles distant from it. Where examined by our party, the main crest of this range is rarely elevated less than 6,000 feet above the level of the sea; and many of its peaks tower into the region of eternal snow, the lower limit of which is 8,000 feet above the same level. This long chain of mountains forms a great natural boundary. To the eastward lies a plateau, the average altitude of which is about 4,500 feet above the sea. The winds from the sea deposit most of their moisture upon the western slope of the mountains, and reach the plateau dry. This, together with the volcanic character of the country, renders nearly the whole region an arid waste, unfit to support a civilized population.

"West of the Sierra Nevada and Cascade ranges, the character of the country is widely different. The Coast Range, another and parallel chain of mountains, but of a lesser altitude and a more broken nature, borders the sea-shore. Between the two lie several large fertile valleys, elevated but slightly above the sea, and containing nearly *all of the arable land of the far west;* of these valleys, the San Joaquin and the Tulare, the Sacramento, the Williamette, the Umpqua, the Rogue River, and the Cowlitz are the chief."

"Sacramento Valley.

"No complete description of this valley will be attempted,

as its general character is well known, and as Lieut. Williamson, in his Railroad Report, has fully discussed its topographical features. A few remarks, however, relating to its climate and productions, may not be out of place.

"Sheltered by the Coast Range of mountains from the moist and cool sea breezes, which renders the summer climate of the sea-shore of northern California so delightful, much of the Sacramento Valley is parched with excessive heat in the dry season. From the Army Meteorological Register, it appears that, at Benicia, where the influence of the sea breeze is felt, the mean summer temperature, for the years 1852–53–54, was 66.3 Fah., while at Fort Reading, which is about two degrees of latitude further north, it was 79.6° Fah., for the same years. Even at San Diego, situated seven degrees of latitude south of Fort Reading, the mean summer temperature was only 70.9 Fah. for the above-mentioned years.

"The effect of this excessively high summer temperature is greatly increased by the want of rain. Very little rain falls during the months of June, July, August, September and October. The mean fall during these five months, for the years 1852–53–54, was 1.1 inches at Benicia, and 1.4 at Fort Reading. This tends to show that less than three-tenths of an inch of rain per month, for the five consecutive hottest months of the year, is to be expected in this valley. The result can be easily anticipated. Vegetation, except on the banks of the streams, is in a great measure destroyed, and the foliage of the trees is almost the only green upon which the eye of the traveler can rest, when wearied with the glare of the sun reflected from the whitened plains.

"During the rainy months, which are December, January, February, March and April, the average fall is between 3 and 4 inches per month. The whole region is then clothed with luxuriant vegetation; but the excess of rain often causes the streams to overflow their banks, and spread far and wide over the low lands. Much of this water remains stagnant, until evaporated by the heat of the sun, which is undoubtedly one of the causes that renders *intermittent fever so great a scourge to the valley.*"

Prof. Blake says of the southern portion of Sacramento Valley:

"The great valley or plain of California, lying between the Sierra Nevada and Coast mountains, is traversed in its lower portions by the Sacramento and San Joaquin rivers, which, flowing from the north and south, unite in the latitude of San Francisco, and empty into the bay. It, however, extends far southward of the sources of the San Joaquin, and includes the broad valley of the Tulare Lakes, generally known as the

Tulare Valley, which, although at some seasons without drainage to the sea, is, topographically, a part of the extended plains under consideration.

"This broad area is unbroken by hills or sudden swells of the surface, and thus, being nearly level, becomes a vast plain —the vision in the direction of its length being bounded by the distant horizon alone. The broad and level expanse is made more evident and striking to the observer by the general absence of trees, and the arid and gravelly surface during the dry season.

"South of the San Joaquin there are several large streams flowing from the Sierra Nevada into the Tulare Lakes. The lakes are broad but shallow sheets of water, with shelving shores, so that a slight increase of the volume of the water during the rainy season covers a large area of the surface. When the water is very high, it is said to flow into the San Joaquin, thus connecting the two valleys by drainage.

"The valley of the Colorado desert is, in many respects, similar to the Tulare plains, but is more heated, arid, and desert like."

Speaking of the evaporating power of the sun and hot winds in the Tulare Valley, an extension, only, of the Sacramento Valley, he says:

"*Rapidity of evaporation from the surface of the lakes.*— Whatever cause may be assigned for the change in the condition of this valley, the rapidity of the evaporation from the surface of the water in that region should not be overlooked in the attempt to solve the problem. The amount of water that is taken up by the winds in that valley is astonishing. We have seen that during the dry season the lakes have no outlet, and that they are constantly receiving great quantities of water from the rivers; the evaporation from their surface then must be equal to, if not greater than the supply. The conditions under which these lakes are situated could scarcely be more favorable for the result. The strong winds that rush in from the Pacific during the day pass over the broad, heated plains and the numerous ranges of the coast mountains before they reach the valley. They thus part with the greater portion of their moisture before they pour in among the Tulares. The shores of the lakes being low and shelving, and without trees, no resistance is offered to these hot and dry winds; they sweep over the surface and absorb the water with surprising rapidity. The rapidity of the evaporation is increased by the temperature of the water, which is fully exposed in shallow lakes to the rays of an unclouded sun, and becomes much heated.

"The parching effect produced by these winds, and the evi-

dent rapidity of the evaporation of *any water* exposed to their action, induced me to make an experiment to determine, if possible, the amount of water taken up each day.

"According to Dr. G. Buist, the amount of evaporation from the surface of water at Aden, on the Indian Ocean, 'is about eight feet for the year.' The basis of this statement is not given, but it is interesting to notice that the amount agrees with my experimental result." (Details of experiment omitted.—Author.)

"If we regard the experimental result as a fair measure of the evaporation from the lakes, we may readily calculate the amount of water taken from them a month or year. We have 36 cubic inches of water for the daily evaporation from one square foot of surface, and consequently 522,929.5 cubic feet from every square mile. This equals 16,210.8 tons, or 4,052,703 gallons—a quantity of which we can scarcely form an adequate conception, and yet it *is for one day only*. If we measure the amount of evaporation in depth, and assume that the quantity evaporated is equal each month in the year, we have, as before observed, *seven feet seven inches and one quarter for the yearly evaporation*. The conditions which I have detailed do not, however, exist throughout the year. In the rainy months the evaporation is much reduced, or perhaps it almost ceases. It is almost certain, however, that the experiment does not show the full amount of evaporation for the summer, it is undoubtedly much greater, and the results can only be regarded as approximate. They are, however, important, and derive greater interest from the fact that few experiments of the kind have been made, and because the climatic conditions of that region are so peculiar."

"*Resemblance between the Tulare Valley and the Colorado Desert.*—It will be seen, by comparing this description of the Tulare Valley with the Colorado Desert, that the valleys resemble each other in their important characteristics. It is probable that their geological history is similar; but although of the same age geologically, the changes in the desert have been most rapid, and its complete dessication has been long since accomplished."

I insert these extracts taken from the very excellent volume written by Prof. Blake on this section of California, only with the view of showing the difficulties to be encountered, even in irrigating the Sacramento Valley. The same state of facts exists over the whole valley, and it will be seen that the difficulties are indeed formidable for agriculture here, even with the extremest efforts of man.

He refers to the character of this plain, as being hot, arid,

and gravelly, except in the Delta and along the immediate valleys of the streams. He states the average heat in the summer, in the shade, at from 96 deg. to 115 deg. This description is substantially that of Lieut. Abbott, of the northern part of the Sacramento Valley. He states distinctly, that the extreme fertility of spots in this valley, is due to the rich, alluvial washed soils, as much as to the presence of ever running, irrigating streams, and, inferentially, that the great majority of this valley, even if irrigated sufficiently, would produce only ordinary agricultural crops.

It will be seen here, that though agriculture has been heretofore carried on profitably in California, the standard can not be kept up, on account of the expense of irrigation and the want of fertility in the remainder of her possibly cultivatable soil. I regret the necessity of these long and extended remarks on the sterility or barrenness of the region west of the 98th and 100th meridian, but the public mind is unprepared for the unwelcome news developed in these pages, and more than the mere assertion of one man will be, and is, necessary to awaken them from their dream of continual westward extension of our agricultural civilization. People of the United States, you may as well look this question squarely in the face, for as surely as the sun rises in the east and sets in the west, you have covered over, now, all the agricultural area of the west, and of the whole country. Immigration will be compelled to go into British America, and around the great American Desert, included within, or extending even beyond, the northern limit of our country.

A portion can and will go southward, and occupy and cultivate the soil left vacant here, by the worthlessness of the labor of the emancipated slaves. The rain areas begin again in Mexico, south of our boundary line, but I am unprepared to state, now, the value of the soils of our sister Republic, for the purposes of agriculture. I will insert, here, as a last reference to this subject, a letter published in the Pittsburg Iron Age, dated—

"DENVER, Col., July 29th, 1867.

"Our farmers have a rich harvest—the first good one for three years. For grazing purposes, the great plains east of here are almost perfectly adapted, but for agriculture of any form they are not fitted, and will not be, until a water supply is furnished them. In the valleys of the Arkansas and Platte water for irrigation can be procured, but only at great expense—more than any farmer is able to incur. Rail road companies selling lands, and colonies, can build ditches that will give an ample water supply, but until this is done it would be folly for any man of small means to settle on any lands in western Kansas, or eastern Colorado."

This man is a citizen of Colorado, and lives on the spot, and gives the very latest intelligence on this subject, and it will be seen, that neither the country or climate is changed.

The agricultural capabilities of the United States, west of the meridian of 98 and 100, does not arise so much from the character of the rocks and consequent character of the soils, of this vast region, as from the want of moisture, any and everywhere, to cause vegetation to grow. The larger portion of the soils east of the Rocky Mountains are identical with the pine woods soils in the southern part of Escambia, Covington and Baldwin counties, in this State, and could be cultivated, if there was only any rain fall, or water for irrigation. In Dakota, and notably in western Texas, and a small strip extending far out into the no rain region of Kansas, are found the cretaceous, the most fertile of the rich prairie soils of Alabama, and it is pitiful to see the tender vegetation, as it comes innocently into the world on these fertile soils in the Spring, and know that within the short space of six weeks it will be withered, and blown away by the hot dessicating winds that blow in summer on these plains.

The Sierra Nevada and the Rocky Mountains themselves, are but the upturned edges of the crater of a vast and once burning volcano, and the intervening spaces and the mountains themselves, in their rocks, in their soils, in climate and in the capacity for agricultural production are indeed a counterpart on this continent of the great desert of Sahara in Africa. There are peculiarities in the rain-fall precipitation on the narrow region along the Pacific coast, that render this

region especially valuable for the production of wheat and other winter crops. The rain-fall here is only one-third that of Alabama, or as 21.73 is to 58.47; but it all comes from November to April—the exact time required for winter wheat and barley, and at the time of gathering and garnering, there is not a drop of water falling to rot or injure the gathered crops in the fields. The Sierra is simply a vast ledge of naked granite and volcanic rocks standing on their upturned edges, and no amount of rain here would cause vegetation to grow. The basin between the mountains, if watered from the heavens, might produce something. Then, perhaps, the winds would not be so withering, scorching and dessicating. But God, in his wisdom, has ordered otherwise; and for compensation, perhaps, has filled this region with the richest of ores of our precious metals. The Rocky Mountain region is a region of wonders and curiosities of nature, but of little value to a bread hungry mortal. The vast region between the Rocky Mountains and Minnesota, Iowa, Missouri, Arkansas and eastern Texas—a region 750 miles wide and 1500 long, immediately west of the old States referred to above—is the only part of our country offering any inducements to an agricultural civilization. I would not, for the purpose of benefiting the soils of Alabama, say a single word in derogation of this vast region of our country, nor would I keep a single immigrant from enjoying here a happy home; but as I have attempted to write on, and profess to know something of, this country, I hope to speak the truth and nothing but the truth. Taking as true the authoritative utterings of the State of Kansas, through her legislature in 1874, we find that three divisions are made by themselves of the State, of a comparative agricultural value, measured only by the comparative rain-fall of each division. The first, extending from the Missouri State line to longitude 97 degrees, has an average rain-fall of 37.07 inches, or two-thirds of the rain-fall of Alabama, 58.47 inches. From 97 to 99 degrees, the rain-fall is 23.61, or about two-fifths that of Alabama; and from 99 to 103 degrees, the western limit of the State, it is only 13.34, or a little over one-fifth of the rain-fall of the State of Alabama; and from 103 to 105 degrees, or to Denver, is 12.94 inches, or about the same. *The above, in my opinion, measures the com-*

parative rain-fall, and, consequently, the comparative agricultural value of this vast region from the Gulf of Mexico to British America. Up to 97 degrees, or the longitude of Austin, Fort Worth, Junction City, Yankton and the Red River of the North, you may go with confidence, and though even here the rain-fall is only two-thirds that of Alabama and the Eastern States, still, *on rich soils*, you can thrive by agriculture. From 97 to 99 degrees, the longitude of Fort Lincoln and Fort Belknap in Texas, Fort Larned in Kansas, old Fort Kearney in Nebraska and the Jacques River in Dakotah, from the highest and most undeniable testimony, you may expect to find only two-fifths of the rain-fall of the *States eastward, all through* the year. If old farmers in the States think that their young scions can squeeze along on this amount of rain-fall, let their sons go there for agriculture. It is well attested and known, that the wild grasses never grow as luxuriantly in this region as they once did in the old States How many of you would now turn out and attempt to raise stock for a living on the wild grass of Georgia, Ohio and New York? West of the meridian of 99 degrees, the universal testimony is, that nothing can be raised without irrigation; and the calculation is made by an officer of the government, Lieut. Wheeler, recently examining, as he says, this question of irrigation east of the Rocky Mountains, as a consequence of a presidential message to congress on the subject, that the entire volume of the water of all the rivers issuing from the mountains, if it was possible to save it all (which he says it is not), would not irrigate *a space of country thirty-five miles wide, and would leave the great rivers comparatively dry, on the plains below.* The above picture is appalling to the American mind, but *it is true.* I present this picture here, that the home hunting world may find the truth without searching for it in great volumes of bound books, inaccessible to the general reader.

The question of fuel, referred to by Prof. Thomas in Hayden's Geological Survey of the West, is also one of the serious drawbacks to the region west of 97 degrees. By some fatuity or freak of nature, it will be seen by the reference to the geological map accompanying this paper, that the *coal formations cease every where along the lines of 97 degrees, except*

a little spot around Fort Belknap in Texas. Think of it, you people who would propose to raise Indian corn for fuel, as suggested by Prof. Thomas, as the only resource now for fuel in all this vast region, with *a rain-fall two-fifths that of Alabama and the Eastern States.* The negro in Alabama, and all the other evils we suffer here, are as nothing as compared to the greater evils to be endured and found every where west of the meridian of 97 degrees.

We have now reached the point in our argument where it is necessary that I should attack, and explain away, the errors and reasons that have hitherto kept people away from Alabama. The first and most potent is, the presence of the negro on our soil.

The second, is the unfair manner in which the agricultural capabilities of our soil are treated and commented on in the state papers of our nation.

We are wrongly treated in other publications as well, but I am a citizen of the United States and have the right, in a respectful manner, to petition and remonstrate with our government or its agents in any matter affecting Alabama or my own interests. Besides, these national publications have a world-wide circulation, and endorsed as they are by our government, they are taken as law not only at home but everywhere abroad. The census publications of 1860 and 1870, especially that of 1860, compiled and made up during the progress of our civil war, have treated us justly and fairly, and are a true mirror of the industries of our nation at the period represented. The facts so truthfully represented in the census of 1870, have been the foundation and source from which the most damaging comparisons have been held up and instituted as to the productiveness of our soils. Without explaining the condition and want of effectiveness of the labor cultivating our soils at that time, great tables and maps of comparison, founded only on the products of our soil at that time, are constructed and hung up, and commented on and circulated all over the civilized world, reducing the great crop producing empires of the South to a standard truly pitiable to contemplate. For instance, the crop producing value of the soil of Alabama, doubling in 1860 any of the States of the

West and North, except Illinois and California, is shown now in these national caricatures (as I respectfully call them) as scarcely one-half of that of the poorest of the barren New England States. These statements are not made with the intention of injuring the reputation of the soil of Alabama or the other Southern States for the production of crop values. But whether made so or not, it must be remembered that the generation of men on the stage of life now, know nothing of our splendid agriculture before the war, now nearly twenty years ago, and judge of our soils capacity to produce values by what they hear, read and see now of our agriculture; and the meagre and counterfeit representation of our soil capacity as presented by the census of 1870 and other state papers, is taken as the true measure of the merits of our soil.

I have gone back beyond the memory of the present generation, outside of the South, and measured our soil capacity by the agricultural actualities of the period when they were properly cultivated and tilled before the war; and with the view of dissipating these errors, I will hang the two pictures representing the productions of 1860 and 1870 side by side in this paper. In regard to our treatment by the census of 1860, I will say nothing. Nor can I say any thing of the census of 1870, *for it speaks the truth.* But the truth sometimes hurts, and hurt it does here. The crop, and other maps published in the census report of 1870, showing at a glance, by the depth of colors, the comparative virtues and deformities of the States, founded on the then existing condition of things, most ruinously and truthfully represent every industry in the South. In the volume entitled "Industry and Wealth," we come, first, to the map showing the comparative wheat product of our territory in 1870. Alabama and the whole South, with the exception of Virginia, Tennessee, western North Carolina and northern Arkansas, and a small portion of Texas, is a blank. In corn product, there appears a thin milky shade of yellow, indicating that corn is raised here, but in amount insignificant as compared to the North and West, excepting only a broad strip of new and fertile soil down through the middle of the State of Texas and around Columbia in Tennessee. In cotton product, it is seen that the sceptre has departed from

Alabama and gone northward and westward to Tennessee, Texas and North Carolina. With the exception of cotton *only*, the leading crop products of the North and West are mapped out and shown by colors in the census of 1870. The hay crop, of course, shows only a red spot here and there in the South; and these, perhaps, only a square mile or two in a place; while the depth of colors every where north of the Potomac and Ohio is intense. In tobacco Tennessee, Virginia and North Carolina appear a little dark; while in dairy products, the Southern States are so blank that they are cut off from the bottom of the map altogether. There are two maps in the volume on population, which though silent, and simply sheets of paper, the one traced over in parts with purple ink and the other with deep black, indicating severally the location of the foreign and negro population of the United States, that speak volumes upon volumes upon the subject of the movement of foreign peoples in our country. Except in spots in and around cities, the absolute absence of the deep purple colors in the region covered over with black, indicating a negro population, and its consistent and deep shadowed presence every where outside of the slave States, clearly indicate that where the negro was *the foreign immigrant would not and did not go.* The Potomac and Ohio represent the line of demarcation. Soil, climate and latitude appear to have nothing to do with the movement of our foreign population. Here I could write a volume, but I hope some other man will do it. There are two more tables, or maps, published in the census of 1870; in one of them, at least, we stand triple *** and number one, the table or map representing the comparative *illiteracy of our people.* On the opposite page is a map representing the comparative *wealth of the different States.* Here, side by side on these two maps, is an epitome of our poverty and disgrace, our illiteracy and wealth. In wealth Alabama, once the seventh in this Union of great States, is a blank, except immediately around and within the corporate limits of our cities, such as Montgomery and Mobile. In illiteracy, or the want of intelligence among the people, it seems that the colors were not deep enough alone, and an extra bottle of soot black ink was turned over and smeared upon the once

bright, intellectual face of Alabama. This system of maps, as printed by our government, is circulated all over the civilized world, and naked and unexplained, have ruined and will continue to ruin our hopes of an immigration of white people from any where. A person looking over a series of these maps in Germany, England, New York or Ohio even, and seeing at a glance the absolute paucity of production and want of wealth everywhere now, and the dark and deep shadows of illiteracy that shrouds and covers over the whole South, will dismiss without a word any idea of coming here. From these maps the only thing that seems prominent at the South now, is illiteracy; a product that no intelligent people wish to cultivate or enjoy. I have endeavored to avoid any reference to politics in this paper, but I will say here that our people have been so much concerned since the war with their political situation, that these errors, affecting their material interests, have been suffered to go on without any explanation or notice. Is there any wonder that the new millions of people seeking homes in our country every year, educated every where as they are from the above, should pass you stiffly and silently by? Your very silence is as an admission that these bottom facts can not be explained away. You rant and you rave in your newspapers and periodicals on the greatness and grandeur of our country, when every man that reads your newspapers and *little pamphlets* has in his pockets the damning evidence of your poverty and shame taken from the records of our nation. The census bureau of 1870, simply placed the naked facts before the world without explanation or comment. The agricultural bureau, however, has seen fit to refer to and comment on these facts in a manner unfavorable to the South, and as this work is published every year the evil is kept moving. My space, as heretofore stated, is limited, and I have already far exceeded my limits, but I trust I will be pardoned for inserting, in defense of the soil of Alabama, the following tables, founded on the census of 1860, or before the war, when our soil was properly cultivated and tilled. The first table gives the value of the farm products in each State in 1860; the *per capita* value, taking the whole population, and also taking only the per centage actually and wholly engaged in

cultivating the soil. The second sets side by side the *aggregate amount* of the leading farm products in 1860 and 1870, and also of the value of live stock and of animals slaughtered or sold for slaughter, and the number of hogs in each of the States for the two periods :

CROP PRODUCTS OF STATES AND TERRITORIES, 1860.

States and Territories.	Wheat.	Indian Corn.	Oats.	Rice.	Tobacco.	Cotton.	Peas & Beans.	Potatoes.	Barley.
Alabama	1,218,444	33,226,282	682,189	493,465	.....	989,955	1,482,036	5,931,563	.....
Arkansas	957,601	17,823,588	475,268	.....	989,980	367,393	440,472	1,984,550	.....
California	5,928,470	510,708	1,043,006	.....	165,574	.....	2,003,760	165,574	4,415,426
Connecticut	52,401	2,059,835	1,522,218	.....	6,000,133	.....	25,864	1,835,538	.....
Delaware	912,941	3,892,337	1,046,910	.....	9,699	.....	7,438	320,144	.....
Florida	.....	2,834,391	46,499	223,704	828,815	65,153	363,217	1,148,515	.....
Georgia	2,544,913	30,776,293	1,231,817	52,507,652	.....	701,840	1,765,214	6,812,320	.....
Illinois	23,837,023	115,117,477	15,220,029	.....	6,885,262	.....	.....	5,846,444	1,036,338
Indiana	16,848,267	71,588,919	5,317,831	.....	7,993,378	.....	.....	4,166,163	382,245
Iowa	8,449,403	42,410,686	1,471,911	.....	18,190	.....	.....	2,858,082	467,103
Kansas	194,173	6,150,727	22,081	.....	20,349	.....	.....	306,300	4,716
Kentucky	7,394,809	60,043,633	792,554	.....	6,487,710	.....	288,346	2,814,088	270,685
Louisiana	32,208	16,853,745	.....	6,331,257	.....	778,738	431,148	2,355,666	.....
Maine	233,876	1,546,071	2,988,839	.....	.....	.....	246,915	6,376,052	802,108
Maryland	6,103,480	13,444,922	3,959,298	.....	38,410,965	.....	.....	1,501,169	17,350
Massachusetts	119,783	2,157,063	1,180,075	.....	3,233,198	.....	.....	3,202,517	134,891
Michigan	8,336,368	12,444,676	4,036,980	.....	.....	.....	165,128	5,299,747	307,868
Minnesota	2,186,993	2,941,952	2,176,006	.....	38,938	.....	.....	2,566,277	109,668
Mississippi	587,925	29,057,682	221,335	809,892	.....	1,202,507	1,954,666	4,978,193	.....
Missouri	4,227,586	72,892,157	3,680,870	.....	25,086,196	41,888	.....	2,326,652	228,502
New Hampshire	238,965	1,414,628	1,329,233	.....	.....	.....	.....	4,137,704	121,103
New Jersey	1,763,218	9,723,336	4,539,132	.....	149,485	.....	.....	5,206,522	24,915
New York	8,681,105	20,061,049	35,175,134	.....	5,764,582	.....	.....	26,448,923	4,186,668
North Carolina	4,743,706	30,678,564	12,781,860	.....	32,853,250	145,514	966,102	6,970,594	.....
Ohio	15,119,047	73,543,190	15,409,234	.....	25,092,581	.....	.....	8,999,546	1,663,868
Oregon	826,776	76,122	885,673	.....	.....	.....	34,407	303,654	26,254

Pennsylvania	43,042,165	20,196,821	27,387,147	.....	3,181,586	.....	.....	11,790,654	530,714
Rhode Island	1,131	461,497	244,453	.....	7,698	.....	.....	543,855	40,993
South Carolina	1,285,631	15,065,606	936,974	119,100,528	.....	353,412	1,728,074	4,342,423	.....
Tennessee	5,459,268	52,089,926	2,267,814	.....	43,448,092	296,464	547,803	3,786,677	.....
Texas	1,478,345	16,500,702	985,389	985,889	97,915	431,466	341,961	1,920,794	.....
Vermont	437,037	1,525,411	3,630,267	.....	.....	.....	70,654	5,254,121	79,211
Virginia	13,130,977	38,319,999	10,186,720	.....	123,968,312	12,727	.....	4,253,215	.....
Wisconsin	15,657,458	7,517,300	11,059,260	.....	.....	.....	99,484	3,821,707	707,307
TERRITORIES.				Rye.					
District of Columbia	12,760	80,840	29,548	.....	15,200	.....	3,749	37,299	.....
Dakota	945	20,269	2,540	350	.....	.....	286	9,489	.....
Nebraska	147,867	1,482,080	74,502	2,495	.....	.....	5,029	162,356	.....
Nevada	3,631	460	1,082	98	.....	.....	15	5,886	1,597
New Mexico	434,309	709,304	7,246	.....	.....	19	38,914	5,403	6,099
Utah	384,892	90,482	63,211	.....	.....	136	2,535	141,001	9,976
Wisconsin	86,219	4,712	134,334	.....	.....	.....	10,850	164,012	4,620

CROP PRODUCTS OF STATES AND TERRITORIES, 1860—Cont'd.

States and Territories.	Buckwheat.	Hay.	Sugar.	Value of farm products.	Per capita value of farm product.	Per centage of farm population.	Per capita value of farm population.	Value of animals slaughtered.	Per capita value of animals slaughtered.
Alabama	.....	62,211	.....	$60,970,243	$ 63 22	60	$ 106 25	$10,237,131	$ 10 61
Arkansas	.....	9,356	.....	25,718,642	59 06	67⅓	87 70	3,878,990	8 98
California	76,887	305,655	.....	11,205,373	29 48	14⅓	205 70	3,449,823	9 08
Connecticut	309,007	562,425	.....	8,210,034	17 84	26	68 60	3,181,992	6 91
Delaware	16,355	36,973	.....	3,666,424	32 67	31½	103 70	573,075	5 10
Florida	.....	11,478	.....	4,727,615	34 02	45½	74 75	1,193,904	8 50
Georgia	.....	46,448	.....	52,082,936	49 16	57½	85 50	10,908,204	10 31
Illinois	324,117	1,774,554	.....	71,945,037	42 02	50⅔	83 06	15,032,433	8 84
Indiana	396,989	622,426	.....	42,624,285	31 56	59	53 64	9,824,204	7 27
Iowa	215,705	813,173	.....	27,990,904	41 45	61½	67 40	4,430,030	6 58
Kansas	41,575	56,232	.....	2,505,722	23 37	64	36 50	558,174	5 20
Kentucky	.....	158,476	.....	37,448,030	32 39	57	56 33	11,640,738	10 07
Louisiana	.....	52,711	221,726	54,592,247	77 00	50	154 00	2,095,330	2 95
Maine	239,519	975,803	.....	10,378,503	16 51	34	48 60	2,780,170	4 42
Maryland	212,385	191,744	.....	17,996,069	26 19	24	109 13	2,821,510	4 10
Massachusetts	123,202	665,331	.....	7,415,461	6 02	14	43 00	2,915,045	2 36
Michigan	529,916	768,256	.....	20,657,772	27 57	52½	52 32	4,093,362	5 46
Minnesota	28,052	179,482	.....	4,878,410	28 35	52	54 52	751,544	4 31
Mississippi	.....	32,901	.....	66,254,034	83 72	61½	136 13	7,809,153	9 83
Missouri	.....	401,070	.....	32,673,507	27 64	55	50 25	9,844,449	8 34
New Hampshire	89,996	642,741	.....	9,190,654	28 19	38½	73 22	3,787,500	11 61
New Jersey	877,386	568,726	.....	15,037,463	22 37	23	97 26	4,120,276	6 13
New York	5,126,307	3,564,793	.....	76,974,110	19 83	28	70 82	15,841,404	4 08
North Carolina	.....	181,365	.....	33,376,028	33 62	54	62 25	10,414,546	10 49
Ohio	2,370,650	1,564,502	.....	55,453,051	23 70	46½	50 96	14,725,045	6 29
Oregon	2,749	279,860	.....	1,499,037	28 56	49½	57 00	648,464	12 36

Pennsylvania	5,572,024	2,245,413	.....	63,609,297	21	88	28	78	15	13,399,375	4	61
Rhode Island	3,573	82,722	.....	1,327,678	7	66	16½	47	87	711,723	4	07
South Carolina	.....	87,587	.....	33,435,901	47	51	54	88	00	61,072,822	8	62
Tennessee	.....	143,499	.....	44,299,090	39	91	60	66	50	12,430,768	11	20
Texas	.....	11,865	.....	28,202,890	46	67	55½	84	09	5,143,635	8	51
Vermont	225,415	940,178	.....	13,448,100	42	67	53	80	51	2,610,800	8	28
Virginia	478,090	445,433	.....	50,892,080	31	25	47	66	50	11,491,027	7	19
Wisconsin	38,987	855,037	.....	24,332,570	31	36	54	58	07	3,365,261	4	33
TERRITORIES.												
District of Columbia	445	3,180	.....	107,811	1	43	01	110	00	55,440	0	74
Dakota	115	3,180	.....	24,092	4	98	33	15	09	375	0	08
Nebraska	12,224	24,468	.....	1,216,363	42	17	39	108	13	97,799	3	39
Nevada	.....	2,213	.....	29,077	4	24	04	106	00	9,385	1	36
New Mexico	.....	1,113	.....	82,764	8	85	39	22	70	347,105	8	62
Utah	.....	19,235	.....	686,981	17	05	35	32	69	244,862	6	08
Wisconsin	707	4,580	.....	230,612	20	75	31	66	95	80,909	6	98

CROP PRODUCTS OF 1860 AND 1870.

Number.	STATES AND TERRITORIES.	Bales of Cotton.		Bushels of Wheat.		Bushels of Corn.		Bushels of Potatoes.	
		1860	1870	1860	1870	1860	1870	1860	1870
1	Alabama	989,955	429,482	1,218,444	1,055,068	33,226,282	16,977,948	5,931,563	2,033,872
2	Arizona	.....	.....	.....	27,052	.....	32,041	.....	691
3	Arkansas	367,393	247,968	957,601	741,736	17,823,588	13,382,145	1,984,550	1,312,827
4	California	.....	34	5,928,470	16,676,702	510,708	1,221,222	2,003,770	2,251,262
5	Colorado	.....	.....	.....	258,474	.....	231,903	.....	121,502
6	Connecticut	.....	.....	52,401	38,144	2,059,835	1,570,364	1,835,858	2,790,761
7	Dakota	.....	.....	945	170,662	20,269	133,140	9,489	50,177
8	Delaware	.....	.....	912,941	895,477	3,892,337	3,010,390	520,144	448,033
9	District of Columbia	.....	.....	12,760	3,782	80,840	28,020	37,299	331,579
10	Florida	65,153	39,789	2,808	.....	2,894,391	2,225,056	1,148,525	799,674
11	Georgia	701,840	473,934	2,544,913	2,127,017	30,776,293	17,646,450	6,812,330	2,818,663
12	Idaho	.....	.....	.....	75,650	.....	5,750	.....	64,534
13	Illinois	1,482	465	23,837,023	30,128,405	115,174,777	129,921,375	5,846,544	11,267,437
14	Indiana	.....	3	16,848,267	27,747,222	71,588,919	51,094,538	4,166,163	5,549,749
15	Iowa	.....	.....	8,449,403	29,435,692	42,410,686	68,935,065	2,858,082	5,948,912
16	Kansas	61	7	194,173	2,391,198	6,150,727	17,025,525	306,300	2,392,521
17	Kentucky	.....	1,080	7,394,809	5,728,704	64,043,635	50,091,006	2,814,088	3,193,176
18	Louisiana	777,738	350,832	32,208	9,906	16,853,745	7,596,628	2,353,636	1,091,401
19	Maine	.....	.....	233,876	278,793	1,546,071	1,089,888	6,376,052	7,771,363
20	Maryland	.....	.....	6,103,480	5,774,503	13,444,922	11,701,817	1,501,169	1,851,911
21	Massachusetts	.....	.....	119,783	34,648	2,157,663	1,397,807	3,202,517	3,026,363
22	Michigan	.....	.....	8,336,368	16,265,774	12,444,676	14,086,238	5,299,737	10,322,450
23	Minnesota	.....	.....	2,186,993	18,866,073	2,941,952	4,743,117	2,566,277	1,944,657
24	Mississippi	1,202,507	564,938	587,925	266,479	29,057,682	15,637,316	4,978,193	1,957,621
25	Missouri	41,188	1,246	4,227,586	14,315,926	72,892,157	66,034,075	2,325,952	4,479,614
26	Montana	.....	.....	.....	181,175	.....	320	.....	91,477

27	Nebraska	.....	.....	147,867	2,125,086	1,482,080	4,736,710	162,356	740,746
28	Nevada	.....	106	3,631	228,866	460	9,660	5,886	129,249
29	New Hampshire	.....	.....	238,965	193,621	1,414,628	1,277,768	4,137,704	4,515,579
30	New Jersey	.....	.....	1,763,218	2,301,423	9,723,336	8,745,384	5,206.522	6,256,223
31	New Mexico	19	.....	434,309	352,822	709,304	640,823	54,030	3,102
32	New York	.....	.....	8,681,105	12,178,462	20,061,049	16,462,825	26,455,923	28,558,249
33	North Carolina	145,514	144,935	4,743,706	2,859,879	30,078,564	18,454,215	6,970,604	3,810,643
34	Ohio	.....	.....	15,119,047	27,882,159	73,543,190	67,501,144	8,999,546	11,423,109
35	Oregon	.....	.....	826,776	2,340,746	76,122	72,138	303,654	483,680
36	Pennsylvania	.....	.....	13,042,165	19,672,958	28,196.821	34,702.006	11,790,654	13,021,939
37	Rhode Island	.....	.....	1,131	784	461,497	311,957	545,855	669,550
38	South Carolina	353,412	224,500	1,285,031	783,610	15,065,606	7,614,207	4,342,423	1,425,417
39	Tennessee	296,464	181,842	5,459,268	6,188,916	52,089,926	41,343,614	3,786,677	2,330,020
40	Texas	431,463	350,628	1,478,345	415,112	16,500,702	20,554,538	2,020,794	2,396,424
41	Utah	136	22	384,892	558,473	90,482	95,557	141,001	323,808
42	Vermont	.....	.....	437,063	454,703	1,525,411	1,699,882	5,254,121	5,157,524
43	Virginia	12,787	183	13,130,977	7,398,787	38,319,999	17,649,304	4,253,215	2,149,735
44	Washington	.....	.....	86,219	217,043	4,712	21,781	163,612	281,144
45	West Virginia	.....	2	.....	2,483,543	.....	8,197,865	.....	1,100,491
46	Wisconsin	.....	.....	15,657,458	25,606,344	7,517,300	15,033,998	3,820,705	6,648,349
47	Wyoming	.....	.....	.....	.....	.....	.....	.....	617

CROP PRODUCTS OF 1860 AND 1870—Continued.

Number.	STATES AND TERRITORIES.	Bush. Peas & Beans.		Value of Live Stock.		Number of Hogs.		Value of animals slaughtered, or sold for slaughter.	
		1860	1870	1860	1870	1860	1870	1860	1870
1	Alabama	1,482,036	156,574	$ 43,411,711	$ 26,690,095	1,748,321	719,757	$ 10,237,131	$ 4,670,146
2	Arizona	.....	3,417	.....	143,996	.....	720	.....	9,400
3	Arkansas	440,472	47,376	22,096,977	17,222,506	1,171,630	841,129	3,878,990	3,843,923
4	California	165,574	380,010	35,585,017	37,964,752	456,396	444,617	3,449,823	6,112,503
5	Colorado	.....	7,500	.....	2,871,102	.....	5,509	.....	252,394
6	Connecticut	25,864	13,038	11,311,079	17,545,038	75,120	51,983	3,181,992	4,881,858
7	Dakota	286	456	39,116	779,952	287	2,033	375	22,066
8	Delaware	7,438	3,123	3,144,706	4,257,323	47,848	39,818	573,075	997,403
9	District of Columbia	3,749	40	109,640	114,916	1,099	577	55,440	455
10	Florida	363,217	64,846	5,553,356	5,212,157	271,742	158,908	1,193,904	520,966
11	Georgia	1,765,214	410,020	38,372,734	30,156,317	2,036,116	988,566	10,908,204	6,854,382
12	Idaho	.....	610	.....	520,580	.....	2,316	.....	57,932
13	Illinois	108,028	115,854	72,501,225	149,756,698	2,502,302	2,703,343	15,032,433	56,718,944
14	Indiana	79,902	35,356	41,855,539	83,776,782	3,099,110	1,872,230	9,824,204	30,246,962
15	Iowa	41,081	42,313	22,476,293	82,987,133	934,820	1,353,908	4,430,030	25,781,223
16	Kansas	9,829	13,109	3,332,450	23,172,185	138,224	206,587	558,174	4,156,386
17	Kentucky	288,346	119,926	61,868,237	66,287,343	2,330,595	1,838,227	11,640,738	24,121,861
18	Louisiana	431,148	26,888	24,546,940	15,929,188	634,525	338,326	2,095,330	817,831
19	Maine	246,915	264,502	15,437,533	23,357,129	54,783	45,760	2,780,179	4,939,071
20	Maryland	34,407	57,556	14,667,853	18,433,698	387,756	257,893	2,821,510	4,621,418
21	Massachusetts	45,246	24,690	12,737,744	17,049,228	73,948	49,178	2,915,045	4,324,658
22	Michigan	165,128	349,365	23,714,771	49,809,869	372,386	417,811	4,093,362	11,711,624
23	Minnesota	18,988	46,601	3,642,841	20,118,841	101,371	148,473	751,544	3,076,650
24	Mississippi	1,954,666	176,416	41,891,692	29,940,238	1,532,768	814,381	7,809,153	4,090,818
25	Missouri	107,999	43,986	53,693,673	84,285,273	2,354,425	2,306,430	9,844,449	23,626,784
26	Montana	.....	2,414	.....	1,818,693	.....	2,599	.....	169,092

27	Nebraska	5,029	3,332	1,128,771	6,551,185	25,369	59,449	97,779	854,850
28	Nevada	15	414	177,638	1,445,449	3,571	3,295	9,325	104,471
29	New Hampshire	79,454	58,375	10,924,627	15,246,545	51,935	33,127	3,787,500	3,720,243
30	New Jersey	27,674	56,221	16,134,693	21,443,463	236,089	142,563	4,120,276	6,982,162
31	New Mexico	38,514	28,856	4,499,746	2,389,157	10,313	11,267	347.105	225,165
32	New York	1,609,339	1,152,541	103,856,296	175,882,712	910,178	518,251	15,841,404	28,225,720
33	North Carolina	1,923,204	532,749	31,130,805	21,993,967	1,883,214	1,075,215	10,414,546	7,983,132
34	Ohio	102,511	45,443	80,384,819	120,300,528	2,251,653	1,728,968	14,725,945	40,498,375
35	Oregon	34,407	12,575	5,946,255	6,858,625	81,615	119,455	648,465	1,365,737
36	Pennsylvania	123,090	39,574	69,672,726	115,647,075	1,031,266	867,548	13,399,375	28,412,903
37	Rhode Island	7,698	9,920	2,042,044	3,135,132	17,478	14,607	711,723	755,552
38	South Carolina	1,728,074	460,378	23,934,465	12,443,510	965,779	395,999	6,072,822	2,507,149
39	Tennessee	547,803	194,535	60,211,425	55,084,075	2,347,321	1,828,690	12,430,768	15,856,880
40	Texas	341,961	42,654	42,825,447	37,425,194	1,371,532	1,202,445	5,143,635	4,835,284
41	Utah	2,535	9,291	1,516,707	2,149,814	6,707	3,150	244,862	172,382
42	Vermont	70,654	95,242	16,241,989	23,888,835	52,912	46,345	2,610,800	4,320,619
43	Virginia	515,168	162,102	47,803,049	28,187,669	1,599,919	674,670	11,491,027	8,375,975
44	Washington	10,850	15,790	1,099,911	2,103,343	6,383	17,491	80,909	262,280
45	West Virginia	.....	31,449	.....	17,175,420	.....	268,031	.....	4,914,792
46	Wisconsin	99,484	388,425	17,807,375	45,310,882	344,055	512,778	3,365,261	11,914,643
47	Wyoming	.....	4	.....	441,795	.. ..	146	.....	11,712

It will be seen that in the aggregate value of crop products Alabama produced in 1860, $60,970,243, and was exceeded only by New York, Illinois, Pennsylvania and Mississippi. In *per capita* production, by total population, Alabama was $63.22, and was exceeded only by Louisiana and Mississippi; and for the per centage actually engaged in the fields, she produced $106.25, and was exceeded only by California, Louisiana, Mississippi and Maryland. This column shows truthfully the actual returns for a year's labor on a farm, on each of the States, in 1860.

A certain proportion of the population of every agricultural country on earth are, necessarily, non-producers—merchants, mechanics, lawyers, common carriers, etc. etc.—and do not go into the fields. This class, in a healthy state of agricultural civilization, are in numbers sufficient only to carry on the business outside of the farms. When too many, they fall back into the fields; and when one is wanted in this class, he goes from the fields. In Alabama, in 1860, 60 per cent. went into the fields, or were dependent exclusively on farming for a support. $33\frac{1}{3}$ per cent. belonged to the army of non-producers, engaged exclusively in carrying on the business of the farmers; and $6\frac{2}{3}$ belonged to professions not incident to or dependent directly on farming for a support. The non-producing class was found organized in 1865, in Alabama, on the basis of production here before the war. But as the productions have diminished to nearly one-third of what they were before the war, there is great sufferings and poverty in this class, and they will necessarily be compelled to fall back into the fields or starve. This shrinkage in production has ruined all our great railroads in Alabama, and every other interest based on agriculture. California stood, in 1860, at the head of the farm labor paying list, and she is still ahead, based on her production of wheat. Louisiana next, based mainly on her production of sugar. Mississippi next, based on her cotton production. It will be seen that Alabama was exceeded in her per capita meat product, by only Oregon and Tennessee.

In the second table, to which we now refer, under the head of animals slaughtered or sold for slaughter in 1860, it will be seen that Alabama raised meat in the aggregate amount of

$10,237,131, and was exceeded in aggregate amount by only New York with $15,841,404, Illinois $15,032,433, Ohio $14,-725,945, Pennsylvania $13,399,375, Tennessee $12,430,768, and North Carolina $10,414,546. In the total value of her live stock, including animals of all kinds, amounting in 1860 to $43,471,711, she was exceeded only by New York, Pennsylvania, Illinois and Ohio, of the States of the West. In the number of her hogs, by only Indiana, Illinois and Ohio. In potatoes, by New York, Ohio, Maine and Pennsylvania. In peas and beans, by New York alone. I publish this second table here, with the crop products and agricultural values, exactly as taken from the census of 1860 and 1870, side by side. We have no money now to print and publish great maps, such as those printed by our government, of the meagre production of 1870, and I can only ask the civilized world to look at and compare the products of our State at these two periods before making up their verdict on the capability of the soil of Alabama to produce agricultural values. *Reader, look over these tables item by item and compare.* If I only had the money to publish crop maps, showing the comparative soil products of 1860 of the States of the Union, so that the world could see at one glance what we were before the war, I would write no more on this subject here.

The report of the Agricultural Bureau, published as it is annually, has, perhaps unwittingly, done us great harm. In the volume for 1873, a table is prepared entitled, "A table showing the product of each of the principal crops of the several States named, the yield per acre, the total acreage, the average price in each State and the value of each crop for 1873." I will give a sample of the construction and character of this table by taking Ohio, Indiana and Illinois, three States of the North, and their once great equals in agriculture—Georgia, Alabama and Mississippi—States of the South. I will also add Louisiana and Kansas:

TABLE, SHOWING THE PRODUCT OF EACH PRINCIPAL CROP, &c.

Products.	Quantity produced in 1873.	Average yield per acre.	Number of acres in each crop.	Value per bushel, lb or ton.	Total valuation.
OHIO.					
Indian corn...bushels	88,422,000	35	2,526,343	$ .42	$ 37,137,240
Wheat..... do.	18,567,000	12	1,547,250	1 31	24,322,770
Rye..... do.	401,000	11	36,454	75	300,750
Oats..... do.	23,090,000	27	855,185	35	8,081,500
Barley..... do.	1,576,000	21.8	72,293	98	1,544,480
Buckwheat.... do.	191,000	11 4	16,754	99	189,090
Potatoes..... do.	6,045,000	85	71,117	88	5,319,600
Tobacco.....pounds	32,500,000	1,181	27,500	0 55	1,787,500
Hay.....tons	1,903,000	1.05	1,812,381	14 61	27,802,830
Total.....	.....	.....	6,965,277	.....	$ 106,485,760
INDIANA.					
Indian corn...bushels	67,840,000	25.6	2,650,000	$ 40	$ 27,136,000
Wheat..... do.	20,832,000	11.2	1,860,000	1 22	25,415,040
Rye..... do.	397,000	14.2	27,958	71	281,870
Oats..... do.	11,400,000	20	570,000	32	3,648,000
Barley..... do.	568,000	22.2	25,585	1 06	602,080
Buckwheat.... do.	139,000	12.1	11,487	88	122,320
Potatoes..... do.	2,520,000	56	45,000	85	2,142,000
Tobacco.....pounds	15,600,000	800	19,500	06	936,000
Hay.....tons	893,300	1 25	714,649	11 50	10,272,950
Total.....	.....	.....	5,924,170	.....	$ 70,556,260
ILLINOIS.					
Indian corn...bushels	143,634,000	21	6,839,714	$ 32	$ 45,962,880
Wheat..... do.	28,417,000	13.5	2,104,963	1 10	31,258,700
Rye..... do.	2,078,000	15.5	134,064	58	1,205,240
Oats..... do.	35,360,000	30	1,178,666	28	9,900,800
Barley..... do.	2,280,000	23	99,130	95	2,166,000
Buckwheat.... do.	90,000	8.5	10,588	99	89,100
Potatoes..... do.	5,510,000	40	137,750	1 12	6,171,209
Tobacco.....pounds	7,575,000	850	8,911	09	681,750
Hay.....tons	2,350,000	1.25	1,880,000	8 75	20,562,500
Total.....	.....	.....	12,393,786	.....	$ 117,998,170
GEORGIA.					
Indian corn...bushels	24,014,000	12.3	1,952,358	$ 82	$ 19,691,480
Wheat..... do.	2,176,000	7	310,857	1 75	3,808,000
Rye..... do.	110,000	6	18,333	1 64	180,400
Oats..... do.	4,800,000	13.4	358,209	75	3,600,000
Barley..... do.	8,900	13.2	674	1 20	10,680
Buckwheat.... do.	.....	.....	.....	.....	.....
Potatoes..... do.	202,000	78	2,590	1 15	232,300
Tobacco.....pounds	343,000	750	457	2 07	71,001
Hay.....tons	19,500	1.05	18,571	20 50	399,750
Total.....	.....	.....	2,662,049	.....	$ 27,993,611

TABLE, SHOWING PRODUCT OF EACH PRINCIPAL CROP, &c.—Cont'd.

Products.	Quantity produced in 1873.	Average yield per acre.	Number of acres in each crop.	Value per bushel, lb, or ton.	Total valuation.
ALABAMA.					
Indian corn....bushel	21,751,000	14.5	1,500,069	$ .84	$ 18,270,840
Wheat..... do.	884,000	7.3	121,096	1 70	1,502,800
Rye..... do.	20,000	9.4	2,127	1 56	31,200
Oats..... do.	813,000	15.5	52,451	78	634,140
Barley..... do.	.....	.....	.....	.....	.....
Buckwheat.. do.	.....	.....	.....	.....	.....
Potatoes..... do.	170,000	80	2,125	1 20	204,000
Tobacco..... pounds	200,000	727	275	15	30,000
Hay.....tons	17,000	1.20	14,167	18 50	314,500
Total.....	.....	.....	1,692,310	.....	$ 20,987,480
MISSISSIPPI.					
Indian corn...bushels	18,543,000	15.5	1,196,322	$ 85	$ 15,761,550
Wheat..... do.	189,000	9.6	19,687	1 75	330,750
Rye..... do.	15,000	10	1,500	1 60	24,000
Oats..... do.	492,000	14.4	34,166	86	423,120
Barley..... do.	.....	.....	.....	.....	.....
Buckwheat.. do.	.....	.....	.....	.....	.....
Potatoes..... do.	206,000	87	2,368	1 20	247,200
Tobacco..... pounds	85,000	739	115	17	14,450
Hay.....tons	13,000	1.27	10,236	20 25	263,250
Total.....	.....	.....	1,264,394	.....	$ 17,064,320
LOUISIANA.					
Indian corn...bushels	9,112,000	16.5	552,112	$ 90	$ 8,200,800
Wheat..... do.	.....	.....	.....	.....	.....
Rye..... do.	.....	.....	.....	.....	.....
Oats..... do.	35,000	16.3	2,147	84	29,400
Barley..... do.	.....	.....	.....	.....	.....
Buckwheat.. do.	.....	.....	.....	.....	.....
Potatoes..... do.	60,000	60	1,000	1 05	63,000
Tobacco..... pounds	35,000	777	45	18	6,300
Hay.....tons	13,100	1.20	10,917	17 50	229,250
Total.....	.....	.....	566,351	.....	$ 8,528,750
KANSAS.					
Indian corn...bushels	47,000,000	39.1	1,202,046	$ 31	$ 14,570,000
Wheat..... do.	4,333,000	14	309,286	1 00	4,330,000
Rye..... do.	310,000	11	28,181	56	173,600
Oats..... do.	9,360,000	33	283,636	23	2,152,800
Barley..... do.	515,000	27.5	18,727	70	360,500
Buckwheat.. do.	90,000	12.5	7,200	80	72,000
Potatoes..... do.	3,000,000	1.00	30,000	94	2,880,000
Tobacco..... pounds	220,000	611	360	10	22,000
Hay.....tons	977,000	1.50	651,333	3 90	3,810,300
Total.....	.....	.....	2,530,769	.....	$ 28,311,200

Look at this table. It will be seen that Kansas exceeds, as appears here, any of the Southern States named in the production of crop values, notwithstanding the fact that the prices given in Georgia, Alabama and Mississippi are double what they were before the war, and those of Kansas only about the same as they were in the West before the war. Whilst the aggregate values of Ohio, Indiana and Illinois, which were less in 1860, as will appear from the table No. 12, than those of Georgia, Alabama and Mississippi, have left us far behind.

By reference to the table above referred to, it will be seen that the aggregate crop values of Ohio, Indiana and Illinois was, in 1860, $181,797,656, and that of Georgia, Alabama and Mississippi $187,188,766, or more than the great Western States. By reference to the table *of principal crops, &c.*, prepared by the Agricultural Bureau, it will be seen that the value in 1873 was $295,040,190 for Ohio, Indiana and Illinois, and only $66,045,454 for Georgia, Alabama and Mississippi, the one rated at a little above anti-war prices and the other at double anti-war prices. But if the reader will examine closely the above tables, he will see that *cotton, sugar and rice, the principal crop products of the South, are left out, and only the principal agricultural articles produced in the West are enumerated, and still it purports to be a table of the principal crop products of the States named.* The skeleton tables, founded on the census of 1870, of the miserable crop productions at that time, are kept before the public, and continually referred to and commented on in language like the following:

"The census record of production in these States is but $558,000,000; the record should be made to read $1,500,000,000. With three-fourths of the people of ten States employed in agriculture, the value of agricultural products exceeds but little that of the States of New York and Pennsylvania, where only one-fourth are so employed. The average for each person employed in agriculture in those States are respectively, as deduced from the census, $677 and $707, while those of Georgia and Mississippi are $239 and $282. For the ten States the average is $267; for the four populous middle States $686. Even the States producing cheap corn show a larger return, the average for one man's labor in the five States between the Ohio river and the Lakes being $498, while the six sterile eastern States produce $490 for each farmer. It

may be the census is less complete in the cotton States, but it is undeniable that *agricultural industry* makes a smaller *aggregate return* there than in any other section. Nor is the reason wanting—it is due to the prominence of cotton, the return for which is substantially a fixed quantity and the neglect of all other resources."

"There is *no sufficient cause* why twenty-five per cent. of the people of Pennsylvania should produce in agriculture a value of $52 annually for each inhabitant in the State, while 59 per cent. of the people of Virginia should only divide $48 per head of total population.

"The path of progress has been open to all; laws supposed to favor a diversified industry have been applicable to all States alike; the best water power and cheapest coal are in States that make no extensive use of either; milder climates and superior facilities for cheap transportation, have furnished advantages that have not been transmuted into net profits; and yet such communities are daily inflicting irreparable injuries upon themselves by neglecting the gifts of God, *and spurning the labor of man*, and are wont to deem themselves injured by the prosperity flowing from superior industry and a practical political economy."

It is strange that the Agricultural Bureau of the nation, organized and paid for the purpose of finding out the difficulties, and promoting the interests of farming, should fail to find out what is the matter with the agriculture of the cotton States; and should attribute it to the selfishness of producers, in raising all cotton; the want of economy, and the prevalence of the same wasteful, thriftless habits of ante-war times; when the true cause—the *inefficiency* and *want of labor*—is seen and felt on every farm and in every field in the South. One other comparison, and I am done with this part of my subject. In the evidence given in before the Windom Transportation Committee of the United States Senate, raised to promote cheap transportation for the grain and other products of the West to the sea, and with the view of getting southern votes, it was necessary to make it appear that the soil of the cotton States could never produce *meat and bread*, and that cheap transportation to the grain fields of the West was the panacea for all our ills. In doing this, the tables of the census of 1870 were referred to by Mr. Frobell of Atlanta, President, or General Agent, of the Tennessee Great Western Canal improvement. In my forthcoming work I comment on

this testimony, and give it as another sample of the manner in which our agriculture is injured, as follows:

"I will advert to and comment on the testimony of a Mr. Bushrod W. Frobell, from Atlanta, Ga., before the Senate Committee. From the length of his testimony—forty-one pages—he seems to have been a man of some prominence. He was given more space than was given the city of Mobile, and one-third as much as was given to the city of New Orleans. He represented the Atlantic and Great Western Canal, and had the endorsement of the Governor of Georgia. He represented Alabama, or rather his was the only testimony on Alabama that I saw in the book, in relation to this matter. As soon as I opened the book, I saw he was lost, and on the wrong side of the branch, as far as the interests of the South, and especially Alabama, were concerned. Passing over his general testimony, I came first to an elaborate and carefully compiled table of statistics, in which appears as table No. 2, the population and productions of counties on the Coosa river, and its tributaries in Alabama, etc., etc. Old Autauga stood at the head of the list, just as she always has done, in the alphabetical list of counties in Alabama. Looking along the column, I found under the head of corn production, the county of Autauga, 191,158 bushels, instead of 559,521, her product in 1860. The county of Montgomery, just across the river, 602,549 bushels, instead of 1,586,480 bushels, in 1860. The county of Lowndes, still lower down, 453,187, instead of 1,288,722 bushels. Dallas 437,701, instead of 1,352,961. Glorious old Macon 168,661, instead of 972,731. Animals slaughtered for food: The capacity of old Autauga was put down at $32,531, instead of $190,636. Montgomery $90,153, instead of $336,915. Lowndes $53,433, instead of $319,844. Dallas $60,343, instead of $369,255; and everything else in the same miserable proportion, all over the State. I saw he had been reading from that miserable fraud upon the soils of the South, the census of 1870. I do not intend to accuse Mr. Frobell of fraud, or intentional fraud, in presenting Alabama before this committee, and the world, in the pitiable attitude and plight that he did. Like others, he may not have known Alabama in the days of her glory; and like others, the world over, he took it for granted that these printed maps and reports of Government, represented truly, the capacity of our soil for production. But I do claim the right, as far as Alabama is concerned, as one of her citizens, to paint over these slurs on her virtue, and set her right before the world."

But we will see further, on page 738 of the Report, Mr. Frobell says:

"Four of the Cotton States plant six million acres in food crops, and employ half their labor and capital in cultivating corn and wheat. This deprives the West of a market for fifty millions of bushels of grain, which is left worthless upon the hands of the producer.

"At the same time it enhances the price of cotton, imposing additional hardships upon the agricultural laborer whose scanty earnings will scarcely permit him to indulge in the luxury of a shirt; and all this is due from the fact that we have no means for the interchange of our respective products cheaply."

The above is the testimony of Mr. Frobell, the only representative of Alabama before this important Congressional Committee, on this subject. It will be seen that our friend, having read the wrong sign-board at first, and got lost, never touches the true reason of the condition of the South, and the remedy therefor. His first argument is, that the planting of six millions of acres in food crops by four of the cotton States deprives the West of a market for fifty millions of bushels of grain; and while *this cause enhances the price of cotton*, it has made our friends in the West so poor that they have to go naked. He next says: "Why do we import iron? Why does the South plant millions of acres of corn, and raise that product at an average cost of ninety-four cents per bushel, while cotton was worth twenty cents per pound, and corn in Missouri and Iowa some ten cents per bushel?" I do not deny that this statement of facts may be true, nor do I deny any of his statements of fact. They are but too true. But I do protest, in the name of my State, to hanging this skeleton on the wall, and calling it Alabama. Say *she is sick, say she is not well, tell what is the matter with her*; or at least hang around her the old pictures of her former self and her daughters, the counties of Autauga, Montgomery, Lowndes, Macon, Dallas, of Madison, of Marengo, aye, and the little county of Jefferson, with her 559,521 bushels of corn, and her 4,940 cotton bales—little bags of gold, comely, handsome, and full fed as they then were. Like any once beautiful matron would be, she is ashamed of this counterfeit of herself—herself, it is true, but all the essential elements of herself are left out.

We will now follow Mr. Windom and his committee to

Washington, and hear his report to the Congress of the United States. We will enter. Hanging around the walls of the Senate Chamber are the pictures drawn by the people of the various parts of our country, by themselves.

First is the great picture, as drawn by Mr. Flagg, President of the Northwestern Farmers' Association, of the farmers of the West in mighty array, on their march to the sea, to feed a people a thousand miles away, with the gates of hell breaking down to let them go through. Of Mr. Powell and Mr. Van Horn, delegates from the Kansas City (Mo.) Board of Trade, detailing to the committee the fact—"As to corn, it is quoted the day on which this is written, in New York, at 58½ to 60 cents per bushel, leaving to the farmer, the shipper, and for all expenses in getting it on the car in Kansas City, a margin of six to eight cents. Is it strange that it is burned for fuel, to save the destruction of timber, and cheaper than coal at the price of mining and delivery!" Of Mr. John Newell, President of the Illinois Central Railroad, telling the fundamental causes of the complaints of the farmers of the West, in these words: "The Liverpool price controls the price here, and the cost of getting grain to the sea-board, difficulty of freight crossing the ocean, which were large and have been increasing since, left a margin here of eighteen to twenty cents per bushel, at the stations around Illinois last fall, which was an exceedingly low price." Mr. Flagg again stating—"That agricultural products have been abundant and cheap in the West, and under the existing state of transportation, the farmers have had to lose." Of Samuel P. Tufts, representing the Northwestern Farmers' Convention, answering the questions of Senator Sherman of Ohio, (p. 645,) advising the wiping out of the present Supreme Court of the United States, if it decides against the power of Congress to build these canals.

Then the picture of Mr. Frobell of Atlanta, of Minnesota, Kansas, Iowa, and the Emigrants' Great West, shivering around piles of burning corn, with no under garment to keep themselves warm; and last, but not least in interest, and by the same hand, the gaunt, spectral figure of Georgia, Alabama, South Carolina, and Florida, kneeling in one frame, debtors, bankrupt, and with no hope for the future, begging

in shame and in sorrow for the husks that the swine of the West will not eat. Mr. Windom rises and makes his report, as follows:

"The cheaper mode of handling grain by elevators has not yet been adopted in Russia, but doubtless will be soon. When this shall be done, and her wise system of internal improvements, which have already turned the wavering balances in her favor, shall be completed, she shall be able to drive us from the markets of the world, unless wiser counsels govern our statesmanship than have hitherto prevailed. In fact, as the increased size of ocean vessels is constantly decreasing the cost of ocean transport, and our wheat fields are yearly receding further westward from the lakes, it is not impossible that when she shall have driven us from the markets of Europe, she will become our active competitor in Boston and Portland, if cheaper means of internal transport be not provided.

"The cry of despair which comes from the over-burdened West, the demand for cheaper food that comes from the laboring classes of the East and from the plantations of the South, and the rapid falling off of our principal articles of export, all indicate the imperative necessity for cheaper means of internal communication. If we would assure our imperiled positions in the markets of the world, reinstate our credit abroad, restore confidence and prosperity at home, and provide for a return to specie payment, let us develop our unequaled resources, and stimulate our industries by a judicious system of internal improvements."

These extracts speak for themselves, and show the attitude in which we stand before the nations of the world. *Do you recognize in these pictures, citizens of Alabama, your State* at any time before the war?

The South can never prosper on bought corn and meat, and the figures in this paper clearly show there is no need of cheap transportation to the grain fields of the West, for the benefit of agriculture here. The cotton produced in the South, as heretofore stated, only stands in the attitude of a gold-paying purchaser for the other products of the farm; and is produced cheaply only in conjunction with other crops, and can never pay the price of bought corn and meat. I introduce here a short extract from the Report of the Mobile & Girard Rail Road for 1876, giving their loss in business, *and the reason for it.* The table measures exactly the movement of business in Alabama since 1871. It fell gradually to 1874, and is gradu-

ally rising now; *and so it is over the whole State.* Read, and reflect on this instructive and sensible little table and accompanying remarks, and *see Alabama as it is:*

"FREIGHT EARNINGS.

"1871	$132,918 71
1872	112, 16 68
1873	114,723 34
1874	97,241 34
1875	103,171 69
1876	106,156 62

"The question then arises, where are the causes of this loss? One reason has been, a reduction of rates, on account of competitive roads; but the main cause has been *in reduction of the producing capacity of the section through which our Road runs, and in the quality of the articles transported, which were largely corn and bacon."* * * * * *

Cheap transportation to the South is a myth. It is singular, however, that men we elect and send to Congress, who live in our midst, and are in daily contact when at home with the ruin, and the causes of the ruin of our country, should follow this straw, as it floats on the great sea of our troubles, and imagine for a moment that by plucking it away the angry waters would subside. Give us labor as effective as we had before the war, and Georgia, Alabama and Mississippi could turn the Mississippi river into the Atlantic at Brunswick, by digging a canal around the southern end of the Alleghanies, along the low valley of the cotton belt, *and pay for it with the lost products of only one year*, as can be seen by reference to the table below. They could also build the Pacific Railroad, and pay for it with *one year's lost products alone.* Away with this nonsense about Great Western Canals! Away with this struggle to build Pacific Railroads across an inhospitable desert, to take people away from here, when an empire of rich, uncultivated, agricultural country lies in ruins at our feet; and let us devote our energies to the real diseases that are destroying us at home. I insert here a table of the products of Georgia, Alabama and Mississippi, in 1860 and 1870, that those Congressmen may see what is the matter with these States and the South:

GEORGIA, ALABAMA AND MISSISSIPPI, 1860.

States.	Population.	Value of Farms.	Live Stock	Number of Hogs.	Wheat.	Rye.	Indian Corn.	Oats.	Tobacco.	Cotton.	Peas and Beans.
Georgia	1,057,286	$107,072,803	38,372,734	2,036,116	2,544,913	115,532	30,776,293	1,231,817	919,318	701,840	1,765,214
Alabama	964,201	175,824,632	43,411,711	1,748,321	1,218,444	72,457	33,226,282	682,179	232,914	989,955	1,482,036
Mississippi	791,305	190,760,367	41,891,692	1,532,768	587,925	39,474	29,057,682	221,225	159,141	1,202,507	1,954,666

CONTINUED.

States.	Potatoes.	Buckwheat, Barley.	Sugar.	Molasses.	Wool.	Honey.	Butter.	Val. an'm'ls Slaughter'd	Hay.	Val. Home Manufactures.	Val of Farm Products.
Georgia	6,812,330	16,685	1,167,000	650,239	946,227	953,915	5,439,765	$10,908,204	46,448	$1,431,413	$ 50,144,358
Alabama	5,931,563	16,482	175,000	140,768	775,117	1,247,233	6,028,478	10,237,131	62,211	1,817,520	60,802,964
Mississippi	4,978,193	3,574	506,000	11,443	665,959	708,237	5,006,610	7,809,153	32,901	1,382,144	66,170,449
											$177,117,771

GEORGIA, ALABAMA AND MISSISSIPPI, 1870.

States.	Population.	Value of Farms.	Live Stock.	No. of Hogs.	Wheat.	Rye.	Ind'n Corn.	Oats.	Tobac'o.	Cotton.	Peas & Beans.
Georgia	1,184,109	$ 94,559,468	30,156,317	988,566	2,127,017	82,549	17,646,459	1,904,601	288,596	473,934	410,020
Alabama	996,992	67,739,036	26,690,095	719,757	1,055,048	18,977	16,977,948	770,866	152,742	429,482	156,574
Mississippi	827,902	81,716,576	29,940,238	814,381	274,524	14,852	15,637,316	414,586	61,012	564,938	176,417

CONTINUED.

States.	Potatoes.	Buckwheat, Barley.	Sugar.	Molasses	Wool.	Honey.	Butter.	Val. of anim'ls sla'ghtered.	Hay.	Val. Home Manufactures.	Val. of Farm Products.
Georgia	2,818,663	6,042	644,000	927,219	846,947	610,877	4,499,572	$ 6,854,382	10,518	$ 1,113,080	$ 31,970,730
Alabama	2,033,072	5,318	31,000	433,278	381,253	320,674	3,213,753	4,670,146	10,613	1,124,513	27,901,907
Mississippi	1,957,621	5,592	49,900	219,673	288,285	199,581	2,613,521	4,090,818	8,324	505,298	31,664,006
											$ 91,546,643

Look along these tables, and then look at the end, and you will see that in bushels and pounds, and at the final adding up, in dollars and cents, the figures are scarcely one-half of what they were before the war. The principal crops, corn, and cotton, are made, now, almost in the same ratio and proportion, that they were made before the war. Cotton 2,894,-302 bales, in 1860, and 1,468,354, in 1870; and corn 93,260,-257 bushels in 1860, and 50,261,723 in 1870, or a few bales of cotton, and a few bushels of corn, more than half what they were before the war. This shows that these crops have been planted and cultivated in the same ratio, and upon the most economical principle, for the raising of both staples, and the loss in one staple is precisely the loss in the other. The planters in the South, now, are cultivating crops to the very utmost extent that the labor will bear. Experience has shown, that before the war, the most profitable and economical crop was fifty bushels of corn to one bale of cotton, and the planters have adopted this plan. But fifty bushels of corn to the fewer bales of cotton, raised in the old Cotton States, since the war, does not give meat and breadstuffs enough to support their population. Nor has the higher price received for the fewer bales of cotton bought corn enough to feed the people of these States. Nor will the labor that is here now, if they produce nothing but corn, feed the people of these States. The crop products of Georgia, Alabama, and Mississippi, in 1860, were valued at $187,188,766. Those of Ohio, Indiana, and Illinois, at $181,797,656. In 1870, those of Georgia, Alabama, and Mississippi were only $91,482,656. Those of Ohio, Indiana, and Illinois, at $290,-000,000. Georgia, Alabama, and Mississippi beat the three Northern States in 1860, in the aggregate; but in 1870, these States produced three times as much as the States of the South. We see here at one glance what we have lost by the war. It is not the loss in slaves, or in the destruction of our other values, *but the absolute loss of our labor* that makes us so poor at this time. The lost products of these three States alone, Georgia, Alabama, and Mississippi, amounted, at anti-war prices, the prices in the above table, annually to $95,706,-111, or allowing for no increase in production, which our history proves was never less than fifty per cent. anywhere in

our country, for each succeeding decade, to $957,061,010, for ten years. The lost products of the other Cotton States were the same in proportion to the amount of slave labor used.

The civilized world is filled with wonder by the payment by France of the indemnity of $1,000,000,000 to Germany in less *than three years*, after her war ended. France had a population of 38,000,000, with her labor, her capital *in money*, in ships, and machines unimpaired, when her war ended. Less than 3,000,000 of people cultivated the soil of Georgia, Alabama and Mississippi before the war between the States. Had we been left with our labor unimpaired, Georgia, Alabama, and Mississippi, could have paid a penal debt, proportionally as large *in one year alone*, and could have paid the whole debt in ten years, *and not felt it.*

Health.

The whole State of Alabama is as healthy as Illinois, Indiana, or Ohio.

Fevers are the most common diseases here, and I find that they are as fatal in Illinois and Indiana, as in Alabama. 13.1 of the deaths in Alabama are from fevers; 13.1 and 12.9 of the deaths of Illinois and Indiana respectively, are from the same causes; Kansas, Texas, New Mexico, and Arkansas show, 25.7, 21.7, 20.7 and 19.5 from the same causes. Only 6.6 died in Ohio from fevers. Pneumonia killed 12.3 in Alabama, 5.3 in Ohio, 8.2 in Indiana, and 19.6 in Arkansas. Consumption 5.3 in Alabama, 6.2 in Florida, 14.1 in Ohio, 12.8 in Indiana, and 10.9 in Illinois. This dreaded disease makes but little headway in this State. Diseases of the digestive organs seem to be severe in Alabama; 17.2 of the deaths occurring therefrom, 16 per cent. in Illinois, 12.8 in Indiana, and 8.9 per cent. in Ohio. The above are the principal diseases affected by the climate or place. I find that fever was more fatal to the negroes than to the whites; 808 negroes in 10,000 dying from fevers, and only 697 whites. Pneumonia killed more negroes than whites, in the proportion of 389 whites to 697 negroes. Diseases of the digestive organs, the most fatal of all diseases in Alabama, killed 855 blacks to 481 whites. These three diseases caused 42 per

cent. of all the deaths in Alabama, and were more fatal to negroes than to whites. These statistics, and others like them, though they give the comparative mortality in the whole State, do not reach the question of deciding the health of any given locality.

The Black Belt of Alabama is like any rich productive country in the world, and is not as healthy as the poorer counties here and elsewhere. But it is as healthy for the white man as for negroes; only the negroes have been accustomed to the sun and hard labor from their youth, and for this reason, seem to stand the sun and same labor much better than the whites.

The health of the Black Belt is a matter, however, easily assured. Artesian well water can be had, any and everywhere now; and there is not a single creek, or malaria producing swamp, away from the Alabama, Tombigbee and Warrior rivers, that cannot be easily drained and cultivated, and made as healthy as any rich part of the South. The small creeks fall from five to ten feet per mile everywhere, and can be easily drained. Along the great rivers it will always be unhealthy in the fall season; but away from them it will not be. This is the case everywhere in the United States, where the rivers run sluggishly, and overflow. Purchase ten thousand acres of land, anywhere in the rich prairie soil, away from the rivers, and dig artesian wells all over it, which can be done with the recently invented machinery for a song, and place upon it two hundred German immigrants, such as now live at Cullman, in this State, as a start, and in less than ten years, this region of Alabama would again vie with Illinois. It is the best country in the world for a laboring, farm producing people, *and we will see it.* I would not speak so confidently, if I had not seen, and lived on, and labored on this, as well as others of the rich, and prosperous regions of our country. These rich and fertile regions all have some difficulties in the way easily overcome by labor. If the negro was not here, there would be an immigration of white people to this rich region of Alabama, equalling that going to Texas; and why not? Dallas, Texas, and Montgomery, Ala., are in the same latitude, and the soils, and the water, are identically the same, and white people cultivate, comfortably, and profitably, the

rich soils of Dallas, and adjoining counties in Texas. I am not informed that artesian water can be had as easily in Texas as it can here in Alabama. Alabama is an elevated plateau, having a system of short rivers of its own, and so of Texas, and is easily drained by the great fall of this plain, of all malaria producing causes. Will the agricultural white man of the South, and the world, continue to pass around this richest, and most fertile of the soils of the United States, as has been shown in this paper, and for no other known reason, than that the negro is here, and won't cultivate the soil? Our Government is engaged in a great war now, with the savages of the Northwest, inaugurated from no other cause than that white people may occupy and cultivate, in peace, the few spots of agricultural soil found here and there, only, over this vast, rainless, treeless Sahara of the West. Emigrants going West, organize themselves into colonies for the purpose of digging great irrigating ditches, to water their dry, and otherwise incapable soils. Is it not easier to dig a ditch, which, whilst it reclaims thousands of acres of the best cultivatable soils in the world, will, at the same time, carry away every atom of disease producing substance that may exist, anywhere, in this rich region of Alabama? I do not say that even drainage is necessary here. But I do say, that away from the large rivers, there is not a swamp, or stagnant pool of water, anywhere over this prairie region of ten thousand square miles, that can not be easily and profitably drained, and rendered as healthy as Indiana, Illinois, or Ohio, as far as miasma is concerned. The country looks now, as if it had just passed through the shackles of * * * * *. No fences, no hogs, no cattle, no agriculture, no nothing. Bald, barren, uncultivated, and washed spots, are seen everywhere; and I will admit, that with the record of 1870 in his pocket, an immigrant will stand on the edge of this once beautiful, but now dreary, uninviting region, and hesitate to cast his hopes, and his fortunes here. But once in, his labor can make it what it once was, or his idleness, unthrift, and the fast growing weeds, will drive him away. The white people here, now, all belong to the now superabundant non-producing class, and they will work nowhere in the fields. The white people else-

where in Alabama and the South, have rich, inviting, and now uncultivated fields, immediately around their old homes, where there are fewer negroes. The only hope for the future prospects of this section, is an immigration of laboring white people from abroad. The white people here, now, are educated and born non-producers, and cannot, and will not, labor in the fields. I have the assurance of every intelligent German, now living in this region, that the laboring white people from the old country, would ask no greater boon than a home in this section of Alabama. But these are all matters of detail, and can be best promoted when this subject of immigration is taken hold of in earnest, and in the right way. The only difficulty now, is the presence of the negro on our soil.

The Negro in Alabama.

The negro in Alabama is now, and always has been, a subject of paramount importance. One hundred years before Alabama was admitted into the Union of States, and even before the first civilization was planted upon our soil by the French, at Mobile, the negro lived in Alabama a slave.

As a servant, he was faithful and true to the nation of Red Men that lived in Alabama, and roamed over her mountains, and prairies, at that time. A little lower only, in rank, and in caste, than his lord, still he was low enough for the sunlight of care and of thought to never enter his brain, and when the Indians went West, their negroes went with them, and thus was eliminated the first system of slavery from our soil that ever existed here. The French colony at Mobile, perished nearly, rather than encounter the fierce rays of an Alabama sun, or the miasma of an Alabama swamp, and lived only, and thrived only, by the importation of negro slaves. In all the fierce contests of the 18th century, between the white men and the Indian for the mastery of this soil, upon which we now live, the negro was ever found faithful to his master, on either side, and so he has ever been since; and even in the war between the States, the soldier negroes were always true to their cavaliers, and their colors. When Alabama was opened to settlement and immigration, an elder son, one or two negro men, and perhaps a negro wo-

man, came on as pioneers, built the first cabin, and made the first crop, and gladly welcomed old master, and the children, in the fall; and in all things, and all through, and down to the end of our terrible war, he was ever faithful and true. For two centuries, the negro in Alabama, as a slave, lived well his part, whether paddling a canoe for Sam Dale, Smith, and Austill, in one of the most heroic and remarkable hand to hand encounters of any age; felling the dark forest; clearing and cultivating our soil; and last, but not least, in his faithful care of our women and children during the late war. But now the curtain lifts on another scene—the negro as a freeman, on our soil. What I have written heretofore, is in relation to the dead, and they can not rise up, and confront me in my remarks; but what I may write now, I expect millions may see, any one of whom has the same right to discuss me that I have to discuss them. I wish to make no statement of fancy, or of fact, that is not true. But I wish to treat the subject with that calmness and candor its importance demands. We have seen in these papers, heretofore, what Alabama was before the war, and what she is now. Once the wonder of the agricultural world, now groveling in the dust, and her children selling their birthright for bread.

The agriculture of Alabama, especially that portion tilled by the negroes as slaves, exceeding in *per capita* value that of the West, by one-half, now does not furnish a support for the people that live here. This condition of things is not peculiar to Alabama alone. The loss of production in Alabama is 55 per cent.; in Mississippi 54 per cent., and in Georgia 47 per cent., of what it was before the war. The negro population in Alabama is 45, in Georgia 47, and in Mississippi 54 per cent. of the whole; and in like manner, the loss is everywhere, where slave labor was used, and *in proportion to the amount of such labor used.* It is clear then without any further argument, that the loss in negro labor is the cause of our agricultural ruin. I have heretofore analyzed, and stated the manner in which the loss comes about. The products of the soil of Alabama do not sustain and support the population of the State at this time. Nor has it done so, except for a few years, when the price of cotton was at least twenty cents in Mobile. If there were no figures on this subject, a mere in-

spection of the farming interest in the State, and especially in the Black Belt, would demonstrate this fact. The large farmers are broke, everywhere. Not one in a hundred makes a crop, now, without mortgaging for his year's support, and supplies. Farm after farm, acre after acre, is eaten up in this way, every year, until now it is hard to ascertain to whom the lands in Alabama really belong. Whilst houses, fences, and everything have gone, and are going, to ruin and decay, the poor farmer can only get advances to make cotton. These advances all come from the class of non-producers, and are made for the purpose of keeping their commissions, and other business alive, and not for the benefit of the producer. Cotton can be tolled, as it passes through the cities, but corn, as it never leaves the farm, can not be very well tolled. If this business of advancing on cotton should stop, in the Black Belt, for one year, what little farming is done there, would cease. It is all done in a hand to mouth way—no corn, no hogs, no cattle, no nothing. I have shown by figures and facts, the condition of this section of Alabama, and in fact that of every other section along, and tributary to, the South & North Alabama Rail Road, and it is useless to multiply words, when the facts are accessible to every one. Something must be done, and that soon. Either the army of non-producers must break ranks, and fall to the ground, and go into the fields, or somebody must starve in Alabama. The negro as a freeman, has not, nor never will, make more than a support for himself in Alabama, or anywhere else, by his labor. If he made all corn, and hogs could be raised here, as before the war, and the people in town and country would live on meat and bread alone, and wear common clothes, the country might stand still. On any other basis, and with the negro as a dependence for labor, the country will go back. There is no help for it, and with the facts staring us in the face, it is useless, and sinful, to shut our eyes to the truth. The labor of eighty thousand whites, and ninety thousand negroes, cannot feed one million of people, when nothing else but agriculture is carried on. There is no use for us to stand shivering around this subject any longer. We may fool the whole world, but don't let us deceive ourselves. The very worst thing a man can do, is to deceive himself; and the rule

holds good as to nations, and States. It is of no use to blame the negro because he won't work, when left to himself, any more than there is in blaming him on account of the color of his skin. He is simply following the laws of his nature, as it has been known always, and from the beginning of time. He has no interest in the soil he cultivates in Alabama, and never can have, except at tax sales. They have purchased hundreds and thousands of acres of land since the war, but with rare exceptions it has been forfeited for non-payment of the purchase money. After feeding their progeny, and paying the commissions on advances, they have nothing left, even to pay rent. I will give an instance. One of my father's old negroes left home, and went to Montgomery county, about five or six years ago, and went to farming for himself. He was one of the best workers, as a slave, I ever saw. He worked well the remainder of the year 1865, after freedom came along, as they say, and for 1866. But in 1867 he got tired, as all the negroes in the South did, when voting came along. I met him frequently, in Montgomery. In the Spring of each year, he was on the high road to a fortune; in the Fall, he had to wait until the cotton was sold, and the money "wided" out. In December, he always found that he had taken the wrong road, as neither fortune, money, nor meat, was at the end of his road; and so he went on, from year to year, until one year he came to me in great glee, and asked me to go with him to his merchant, and see about selling his cotton. I went. The cotton had been sold, and my negro was in debt. The account was all right, but he had made too little cotton, and had eaten up too much corn, at $1.50 per bushel, and meat at 20 cents per pound. He, his wife, son-in-law, and daughter, are still working on this line, and so they will work till the grave closes over them, and then, at least, they will be on the right road.

I am writing this book with no feeling of envy or malice toward the negro. God knows I have none; but simply as far as the negro is concerned, with a view of finding out his value to our State. The figures of the Federal census give his exact value. It is there measured in dollars and cents, and as has been seen, it is *nil—worse than nothing*. I did not make these figures and results. The negro has made them

for himself, and our Government has shown him, as it has every class of citizens of this great republic, at the end of each decade, his standing and his marks, his merits, and his demerits. When first emancipated, it was thought, for awhile, the patriarchal system could be established, and every effort was made by the farmers to do so. But freedom coming as it did, suddenly, and at the end of a great war, in which the whites, their masters, were the vanquished, and the Federals, their liberators, were the victors, the negro naturally looked with suspicion upon any movement of ours, and almost implicitly obeyed any command of a Federal official of any kind. And when an effort was made to carry out this system, some designing knave started out the "word," that unless they moved off their old homes, they were not yet free; and the exodus and change was everywhere made. Some lingered for awhile around their old homes, it is true, but they called themselves by new names, and never were at ease. Finally, voting came along, with its failures, and its follies, its consequences, and its honors; and the feeling of kindness, compassion and care, engendered by interest and association for ages and years, brightened and strengthened by the fidelity of the negro to the women and children of the South during the war, withering, was withered and turned into gall. Oh, bitterest cup of our woes! Darkest pages in the history of Alabama—a conquered people of the white race, ruined by the results of a great war, struggling for bread, in the midst of a social problem that has never yet been solved, suddenly given over by the mailed hand of power, to the rule of a people but yesterday their slaves; a people foreign to them by blood, tradition, and race—a people never known in the history of man, to have governed themselves, much less other races of men. Passing over the political events of the last eleven years—events which I trust every citizen of the United States would have pretermitted if he could have consistently done so—I will come directly to the value of the negro, to the material interests of the State. The negro has no monuments, worthy of being noted in the history of his race, except such as have been produced by his labor, in a condition of servitude. When the negro was emancipated, in the South, it was hoped that there would be

no loss in production, here. The experience of other emancipation States, had, without a single exception, proved that emancipation absolutely destroyed the value of the negro as a laborer, and the productiveness of any country once cultivated by them as slaves, rapidly went into insignificance, and nothingness, after they were left to themselves. *There is not a single exception to this rule anywhere in the history of the world.* It is with regret that I am compelled to record here, the fact that our nation is now writing the first pages of a history that has been written a hundred times before, on this very subject. Sloth, or indisposition to labor, the disease that afflicts the manumitted slave, and his descendants, is incurable—at least no cure has ever yet been found by any nation on earth. It seizes first on the limbs and muscles, and paralyzes them, and attacks, then, the intellect and brain of the poor patient; and whatever of light, whether human or divine, that has been implanted therein, flickering, dies out, and the original barbarism of his nature assumes its full sway. It has been thought by the people of the South, that voting, and exercising the rights of citizenship has rendered him less valuable as a laborer here. The experience of the English Government does not sustain this proposition. Their manumitted slaves have no part in their governmental affairs, as can be seen from the following extract in relation to the English Colony of Jamaica, the most important of English emancipation States. The author says:

"Within about the same period of English rule, (from 1655 to 1801) the estimated census showed 340,000—30,000 whites, 10,000 free people of color, and 300,000 slaves. In 1861, the total population was 441,264, of whom 13,816 were whites, and the remainder half-breeds, or blacks. In 1865, there was an insurrection of the blacks, which was put down with relentless rigor. These blacks had been liberated in 1832. Politically, Jamaica includes the Caymans to the northwest, while to the northeast, the Turk's Islands, the most southerly portion, in fact, of the Bahamas, form a separate dependency. The colony is governed as a crown colony. The government is conducted by the home government, assisted by three executive officers, who receive their appointments from England. There is also an executive council, composed of thirteen members, including the governor, who is president of the council. Six of the twelve members are official, and six are unofficial,

and *all* are nominated by the crown, and *may be removed by the crown.* There are a number of district courts throughout the island, *which are presided over by judges selected from the bar of the mother country, and appointed by the home government.*"

It will be seen that Jamaica is governed entirely by the Home Government, and still the annual exportation of sugar, their principal article of export, has fallen, in less than twenty years after emancipation, from 300,000 hogsheads to less than 300. This once rich agricultural island is now a barren waste. The island of San Domingo represents the condition of the free negro governing himself. The two negro nations occupying this island, Hayti and San Domingo, have a population of 709,000. Cuba is a Spanish colony cultivated by slaves, in numbers about equal to the negro population of San Domingo. The one exported to the United States, in 1874, values to the amount of $77,469,826, and the other only $2,260,425. This measures the progress of two countries side by side, equal in climate and soils; the one cultivated by negroes as slaves, the other *by free negroes governing themselves.* The same measure of loss follows emancipation every where; and the States of the South, if dependent upon negro labor alone, will inevitably, and are now, following in the same line, as appears from the records of our own nation.

There is another singular and peculiar feature incident to and following the manumitted slave every where, and that is, their low ratio of increase, as compared to that of the whites, and to that of themselves when slaves. The rule is universal, but I will give the recorded experience of our own nation only on this subject. By reference to the above extract relating to Jamaica, it will be seen that the population must now be decreasing yearly. I insert the following extracts from the census of 1860:

"In the interval from 1850 to 1860, the total free colored population of the United States increased from 434,449 to 487,970, or at the rate of 12.33 per cent. in ten years; showing an annual increase of one per cent. This result includes the number of slaves liberated, and those who have escaped from their owners, together with the natural increase. In the same decade, the slave population, omitting those of the Indian tribes west of Arkansas, increased 23.39 per cent., and the white population 37.97 per cent., which rates exceed that of

the free colored by two fold and three fold, respectively. Inversely, these comparisons imply an excessive mortality among the free colored, which is particularly evident in the large cities. Thus, in Boston, during the five years ending with 1859, the city registrar observes: 'The number of colored births was one less than the number of marriages, and the deaths exceeded the births in the proportion of nearly two to one.' In Providence, where a very correct registry has been in operation, under the superintendence of Dr. Snow, the deaths are one in twenty-four of the colored; and in Philadelphia, during the last six months of the census year, the new city registration gives 148 births against 306 deaths among the free colored. Taking town and country together, however, the results are more favorable. In the State registries of Rhode Island and Connecticut, where the distinction of color has been specified, the yearly deaths of the blacks and mulattoes have generally, though not uniformly, exceeded the yearly births.

"With regard to the future increase of the African race in this country, various extravagant speculations have been recently promulgated. An attentive survey of the statistics of the census will guide to a more satisfactory approximation. The following summary exhibits the numbers of the colored race, and their rates of increase, during the last seventy years:

POPULATION OF UNITED STATES, AND RATE OF INCREASE.

Years.	Whites.	Increase per cent.	Free Colored.	Increase per cent.	Slaves.	Increase per cent.
1790	3,172,006	.....	59,466	.....	697,897	.....
1800	4,306,446	35.76	108,395	82.28	893,041	32.23
1810	5,862,073	36.10	186,446	72.00	1,191,364	37.58
1820	7,862,166	34.12	233,524	25.23	1,538,038	28.58
1830	10,537,378	35.31	319,519	36.87	2,009,043	31.44
1840	14,195,805	33.76	386,303	20.87	2,487,455	23.41
1850	19,553,068	37.74	434,449	12.46	3,204,313	26.62
1860	26,922,537	38.15	487,970	12.32	3,953,760	22.07
1870	35,589,377	24.76	4,880,009	9.87	.....	.....

"Here the rate of increase will be seen at a glance to have been gradually diminishing; especially during the last thirty years. The greater apparent increase among the slaves, from 1840 to 1850, is connected with the admission of Texas, in 1845. For the future, the rate will probably continue to diminish; and to apply, unchanged, the rate of the last ten years, exceeding rather than falling short of the truth. The following estimates, therefore, have been computed on the assumption that the rate of the last ten years (22.07) shall continue for twenty

years longer, or until 1880, after which the rate is diminished to 20.0, until the close of the present century for the colored population. And to facilitate comparison, the next column exhibits the aggregate of whites, free colored and slaves, based on the well-known and very correct assumption of a mean annual increase of three per cent.

PROBABLE FUTURE POPULATION OF THE UNITED STATES.

Year.	Free Colored and Slaves.	Aggr. White and Colored.	Percentage of Colored.
1870	5,421,900	42,328,432	12.81
1880	6,618,350	56,450,241	11.72
1890	7,942,020	77,266,989	10.28
1900	9,530,424	100,555,802	9.50

The Commissioner says:

——"Leaving the issue of the present civil war for time to determine, it should be observed, if large numbers of slaves shall be hereafter emancipated, so many will be transferred *from a faster to a slower rate of increase.*"

The war ended, and every slave was set free in 1865, one year after the last above sentence was written, and the results, as recorded in the census of 1870, have proved these words almost absolutely prophetic. Instead of 5,421,900 free colored and slaves for 1870, we have as a total only 4,886,387; and instead of a progressive ratio of 22 per cent., the basis assumed by the Commissioner in the construction of the table, when 8-10 of the negroes were still slaves, we find by reference to the table of Population of the United States, that owing to the change from slavery to freedom, the actual ratio of increase of the whole colored population was only 9.1 per cent. per decade, and that their numbers in 1900 (allowing their rate of increase to be 10 per cent.) will be only 6,495,239, instead of 9,530,424, as calculated in the above table.

The Commissioner of 1860 concludes his well digested comments on this subject as follows:

"The extinction of slavery, in widening the field for white labor and enterprise, will tend to reduce the rate of increase of the colored race, while its diffusion will lead to a more rapid admixture, the tendency of which, judging from the past, will be to impair it physically without improving it mentally.

"With the light before me, it seems, therefore, quite rational to conclude that we need not look forward to centuries to develop the fact that the *white race is no more favorable to the progress of the African race in its midst, than it has been to the perpetuity of the Indian on its borders*, and that, as has been the case *in all other countries on this continent* where the blacks were once numerous, the colored population in America, wherever, either free or slave, it must in number and condition be greatly subordinate to the white race, *is doomed to rapid absorption or extinction.* How this result is to be averted partially, at least, we leave to the determination of others, feeling our duty accomplished in developing the facts, as the figures of the census reveal them respecting the past."

The superintendent of the census for 1860, Joseph C. G. Kennedy, Esq., must have been a man of candid and philosophic mind. The work he has compiled, and the comments made on the various subjects affecting the material interests of the United States, stamp the author as a man of most wonderful judgment and power of discrimination. We see in the few remarks, last quoted, the almost prophetic destiny of the negro in the United States. He says first: "The extinction of slavery in widening the field for *white labor and enterprise* will tend to reduce the rate of increase of the colored race, &c." These are the words of a man who has examined the whole subject from a national standpoint. "The extinction of slavery will widen the field of white labor and enterprise." We are beginning to see and recognize the above as a fact now in Alabama. "It, the extinction of slavery, will tend to reduce the rate of increase, &c." This prophetic fact is already a part of the history of this nation. He says further, inferentially, it will cause a diffusion of this race. There is no fact better, or more thoroughly demonstrated in relation to the free negro in Alabama, than that he thrives better, and does better, scattered in small bodies among the whites. It is only in the densely populated negro settlements and communities in Alabama, that we find the thick mists of superstition, unthrift, and barbarism overshadowing and fast creeping over the muscles, the intellect, and soul of the negro. Diffusion is inevitable, and the only hope for the negro. In a multitude of counsel there is safety when applied ordinarily to men. But in a multitude of negro counsel, the history of the race shows there is confusion only. He says dif-

fusion will lead to a more rapid admixture of the races. Political errors have dug this channel so deep, in Alabama, that it will never overflow, and there will be no admixture of races here now, and, with this exception, he is right here again, as he is everywhere. The next sentence is a long one, and though carefully and *somewhat* ambiguously expressed, is but a continuation of the subject matter before us. He says in substance, and in fact, that the white races of men on the continent of America are no more favorable to the progress of the African race, in their midst, than to the perpetuity of the Indian on their borders. A truism well expressed, and historically proved. The other races of men who inhabit this earth have some power to assimilate with each other. But the Indian, the African, and the Mongolian, have no traits in common with the present ruling white races on earth. The white man is ambitious, hopeful, and aspiring; the negro, on the contrary, lives only for to-day, and cares nothing for to-morrow. The leading trait of the Indian character is his dependence on the *fields* of nature for a support. The leading trait of the negro character is his simple trust in the *tree* of nature for an existence. Both believe God made them not to work. In this they differ essentially from the white man, who is told in plain words, that by the sweat of his brow he must live; an irrepressible conflict ensues here, which always ends, and ever will end, in favor of the white man. He closes by stating that he has done his duty in placing the above facts before the people, and leaves to others the task of devising some plan to prevent the extinction or absorption of the colored race, partially at least, in our country. The above facts, and this task, is now before the people of the United States.

It is not generally known, that in 1840, the free negroes in the United States were about one-sixth of the slaves, or one thirty-sixth of the whites. Before that year, their numbers were continually increased, by new manumissions of the States. After that, however, the manumissions were small. In 1860, they were only $\frac{1}{8}$ of the slaves, and 1.55 of the whites. It is true that the whites increased largely, by immigration, and the free negroes but little, *and this* will continue to be the case. The ratio of increase of the colored population of

the United States now, is only 9 per cent. per decade, and that of the whites, 36 per cent.; their increase is less than one-third of the whites. But taking 3 to 1 as a basis of increase, which is higher than will be continued in Alabama, we will state, in figures, what will be their relative numbers in this State, for the next two decades:

	1870.	1880.	1890.
Blacks	475,510	523,031	575,367
Whites	521,384	677,799	881,139

It will be seen that in 1890 the negroes in Alabama will be only two-thirds of the whites. This estimate is based on the records of our own nation, and are more than favorable to the free negro. The commissioner concludes, as—"There is no fear here, now, on the subject of amalgamation. The channel cut by political errors, is so wide, and so deep, that it will never overflow."

The negro has been a freeman in large numbers in New England and the United States for three-fourths of a century; his civil rights were well defined; his social status as well fixed as it is now in Alabama, yet, we find nothing in his history or career worthy of being noted, or recorded here. We find him everywhere occupying the position only of a menial, and such is his position wherever found scattered among the whites, all over the civilized world. This is his normal condition, and it can't be denied when they are in contact with the white people anywhere. They make the best menials and servants in the world; but they require the same continual watching and care that is given to children of ten years of age.

The negro is a peculiar being, and differs widely from all other races of men—in that they have no ambition, no aspiration, no care for to-morrow. I have traveled extensively in the West Indies, and the Spanish American negro emancipated States. I have seen them in every stage of their existence on this continent, whether as slaves, or as emancipated for days, or for years, and a mere animal existence is all they care for or want. As a rule, they are the most docile, and most easily controlled of any of the races of man. When

left to himself to exist is his highest ambition and aim. When first emancipated, the old negroes, once slaves, generally labor continuously and comparatively well, but as the generations come along they grow both physically and mentally weaker; and finally, and in time, they gradually sink away as a race. We have no reason to expect a different course for this race here. The only evil arising from the presence of the negro in our State, his political significance being lost, is that of the existence here of a large, idle, and thriftless vagabond population, with no aim or idea of progress, and inclined to pilfering and lying. The negro is not blood-thirsty, revengeful or cruel, and steals only to get something to eat or wear without working for it.

These are evils the law can never remedy entirely, as they are innate and instinct; but by care and continual vigilance they can be rendered comparatively innocuous. The greatest difficulty of the situation arises from the fact, that the old negroes, as is well known, have no power of controlling their children. They see them growing up in ignorance, idleness and vice, and are utterly powerless to prevent or restrain the evil. They beat and they bang them from morning until night; but, as far as reformation or labor is concerned, they might just as well be beating on a board. This is the principal cause of the falling off of negro labor in the South.

What, then, can we do with the negro in Alabama? We can do nothing but use every effort to make him useful to himself and society. He is almost as much a fixture to the soil of Alabama for generations yet to come, as is the Alabama river itself. Let us forget his political frailties and errors. Situated as he was, and being of his race, we would have done probably just as he has. He knew no better, and, as a race, is not responsible for his political errors. He can only be made useful as a laborer, as he has no capacity in any other direction. In my travels through the white counties in this State, where there are only a few negroes, I was much interested in the decorous appearance of the negro schools, and the genteel appearance and urbanity of the older negroes. Whereas, in the Black Belt and the densely settled negro counties, there is a squalid, indolent and defiant look characterizing the older negroes, and a careless, untidy and

vagabond appearance in the children. Education will make but litte headway in this densely clouded atmosphere of ignorance, superstition and vice, and the only hope for the moral and intellectual elevation of the negro will be from their dissemination in small numbers among the whites. When in numbers in a given locality greater than the whites, they are indisposed to pattern after or listen to advice from the whites; but are controlled in many instances, even now, by priestcraft and witchery, leading them fast back to barbarism. The filling up of the State with white people for agricultural and other purposes, and the dissemination and diffusion of this race will do more to prevent their utter ruin and annihilation than any other causes.

The white man in Alabama, as elsewhere all over the civilized world, will always look upon and treat the negro as an inferior being. No statutes, no laws, no power, except that of brute force, can ever change this feeling or sentiment, and whenever and wherever the negro attempts to put himself on a level with the white man, instantly and in every thing the white man goes away from him. On the contrary, whenever and wherever the negro recognizes this fact, he has the sympathy and good will of the white man in Alabama. This principle of superiority of race is instinct and innate, and applies as well to the white man of Minnesota, Illinois and New York, as it does to Alabama. The vision of the negro is circumscribed by his neighborhood and his county, and if he is largely in the ascendant in numbers here, he avoids or attempts to evade the above given natural law, and the white man leaves him and his children as severely alone as possible, and the result is, a social organism among the negroes, into which nothing enters except ignorance, emotion, and superstition. It happens sometimes in the large negro counties that the negroes, from some cause unknown to the author, recognize this natural law, and their material advancement is at once marked and well recognized. But these are exceptions only to the general rule, and it is my opinion that they will never prosper when huddled together in large numbers. Then, by education, by sympathy, and by kindness, we can save him, perhaps, from the rapid annihilation which has ever followed his race wherever manumitted on earth.

You can no longer depend on his labor as the ground-works of your agricultural prosperity. See and acknowledge the situation at once. Every intelligent white man in the South must know that the negro is going here, as he has gone every where when left to himself on this earth. Stop cross-firing at the negro and depending on his labor for a few dollars rent, and do as they have done in the West, and everywhere where land is plentiful and labor wanting, and invite, not only by words, but by acts, both the immigrant and his labor from abroad. You can't eradicate or change this innate and inborn principle of indifference to labor in the negro, any more than you can change the color of his skin. When a man and his two sons are cultivating a farm themselves, and are not dependent upon the negro for labor, they can make him fit in. But when three negroes are cultivating a farm for one white man, and he is entirely dependent on them for his labor, *his farm is gone up.* They can be made useful as day laborers, and by the job, but *no more as the only dependence* for agricultural labor. I have, with great care and much effort, arrived at the comparative value of slave labor and free negro labor at the South. *It is now from 32.8 to 36.3 per cent. of what it was before the war.* In other words, one hundred negroes, of all ages and sexes, will perform now effective labor the whole year round, to the extent of only 32.8 to 36.7 per cent. of the amount performed by the same negroes as slaves. There is not a white man in the whole South who will deny the truth of the above proposition; and still we cling to this labor alone, and hope it will do better. *It will never do better;* but following the unalterable instincts of their race, it will continue to grow worse. God, in his wisdom, is directing all things. He caused the sufficient rain-fall to stop at longitude 97 deg. He made the rest of the vast region of our continent, west of the parallels of 98 and 99, impossible for agriculture, without the extremest effort of man. He also implanted in the negro these natural and unchangeable features, that causes him as a freeman to give up, without a murmur, the rich soils he has cleared and cultivated as a slave, to the ever-restless, ever-moving, new white races of men, who have until now always found agricultural homes in the West. Within the memory of men now living in Alabama, every

foot of rich soil in this State was occupied and owned by well organized and powerful races of red men. But they occupied soils the white man wanted for cultivation, and the remnant of these races, forty years ago, were seen marching westward in solemn procession, the sacred fires, the last emblem of their still surviving nationality, formally borne aloft by their priests. They repose now, as a nation, in peace beyond the great father of waters. The negro will not go in this way, but subsiding naturally and peacefully where he is, as a race, they will go out without an emblem, a monument, or a sign.

THE MINERALS OF ALABAMA.

I will now briefly refer to the minerals of Alabama, along the line of the South & North Alabama Railroad. The business of mining and manufacturing is too new in this State to authorize the treatment of this subject on the basis of exact facts and results, as I have hitherto attempted to do with our agriculture. I, perhaps, know the soils and topography of Alabama as well as any man in the State, and have seen with my own eyes and witnessed every effort or attempt made toward the development of our minerals, and although I was commissioned by the then great State of Alabama, nearly twenty years ago, to lay out a railroad with a view, mainly, of developing her mineral interest, I confess here to a want of that thoroughly practical knowledge which would entitle my unaided opinion to any weight. Perhaps, however, I may turn over a rock here and there, and some better informed man may see the virtue in it. By reference to the geological map accompanying this paper, prepared by Professors Hitchcock and Blake, it will be seen that the geological systems of Pennsylvania, Ohio and Virginia extend into the State of Alabama and stop near its western borders. The only difference arising from the fact that the minerals in this part of Alabama are found at an elevation, generally, of less than 600 feet above the sea level; whereas, further north in this State, and in Tennessee, Virginia and Pennsylvania, they are found, generally, from one to two thousand feet above the sea

level. The coal formations here are not found on the summit of great and rough mountains, as is the case in Tennessee and the States further north, but lie uniformly and evenly under the flat surface of this slightly elevated plain. From this fact I apprehend that the strata are more regular and less subject to the irregularities, horsebacks and faults that are often found in the northern part of this State and Tennessee, and perhaps in the great mountains further north. The limestone and other rocks underlying the coal, and containing all the remaining minerals of any commercial value, such as iron ores, come smoothly and evenly to the surface in various places all over this slightly elevated and once coal covered plain, and expose in great masses and veins the rich treasures formed by nature in this system of underlying rocks. To my mind it appears that nothing is wanting here, and everything is placed precisely as it should be, to make this portion of the Apalachian coal field, as it expires and goes away, the best fitted practically for the uses of man of any portion of this greatest of American mineral deposits. Starting at the summit of the Blue Ridge mountain at Jemison, the southern rim, so to speak, of the Apalachian mineral region, all the way from New York to Alabama, we come, first, about six miles north of this place to a strata of roofing slate identical with that found in Georgia, Pennsylvania and Vermont. While engaged in building the South & North Alabama Railroad, I examined into this subject as well as I could, and spent several weeks at a slate quarry in Polk county, Ga., with the sole purpose of acquiring and comparing information. I had the materials and quarries here also examined by experts, or men who called themselves experts, and who were well endorsed, and their report was very satisfactory and favorable. The slate is found here in layers, or ledges, and in large quantities, and it is in my opinion equal to any in the United States. We come, next, to the deposits of brown hematite iron ores crossing the railroad near the strata of slate referred to above. These deposits are found in Alabama, dropped along in heaps, in a trend or longitudinal row, corresponding precisely with the strike of the rocks of this region all the way from Georgia to the Cahaba river. Some of these heaps are larger and some smaller, but all val-

uable on account of the per centage of metallic iron contained and the absence of hurtful ingredients, as can be seen from the analysis and practical results everywhere obtained. The furnaces engaged in the working of this class of ores, use charcoal as a fuel altogether, and from what I can learn find a sale for their product, now, on account of *its quality alone.* The Shelby Furnace Company, eight miles east of Calera, and the Briarfield, some ten miles west of Jemison, are the only furnaces using, or having used, this valuable ore along or near the South & North Alabama Railroad. The latter furnace was destroyed during the war and has never been rebuilt. The former, though also destroyed during the war, carries on now the largest business of any company in the State. I have been unable to get any of the details of the business of this company, or such as I am willing to print in a book purporting to give only exact information. I learn from the report of the State Geologist the following facts, which I insert here as a matter of general information:

"Through the kindness and liberality of Mr. Walter Crafts, superintendent of the iron works, I am enabled to give the following analysis of ore, made by Prof. C. F. Chandler:

Analysis of ore from the banks of the Shelby Iron Company.

Combined water	9.25	
Siliceous matter	7.06	
Ferric Oxide	78.86	=55.20 Metallic Iron.
Alumina	2.37	
Oxide Manganese	1.49	
Lime	0.58	
Magnesia	trace.	
Phosphoric Acid	0.37	=0.16 Phosphorus.
Sulphur	0.14	
Total	100.12	

100 Iron contain 0.29 Phosphorus.

Roasted Ore from banks of Shelby Iron Company.

Combined water	3.80	
Siliceous matter	11.74	
Ferric Oxide	81.35	=56.19 Metallic Iron.
Alumina	1.59	
Oxide Manganese	0.75	
Lime	0.57	
Magnesia	0.12	

Phosphoric Acid	0.11=0.05 Phosphorus.
Sulphur	0.16
Total	100.09

100 Iron contain 0.09 Phosphorus."

I regret my inability to obtain any exact and detailed information from the workings of the Shelby Iron Company's furnaces, and I give only the above analyses as showing the quality and composition of their ores.

Col. S. S. Glidden, president of the Alabama Furnace Company of Talladega county, Ala., has furnished me with a detailed and correct statement of the workings of his furnace for the years 1873–'74–'75–'76. I would respectfully call the attention of the interested reader to the concise and correct statements given by Col. Glidden below. The furnace uses charcoal only in the production of iron, as do all the furnaces in this State running on the brown hematite ores:

"ALABAMA FURNACE, ALABAMA COMPANY,
September —, 1876.

John T. Milner, Esq., New Castle, Ala.:

DEAR SIR—Herewith I send you the working of our furnace all the time she has run, and the cost of the material for a ton of iron. I estimate that it costs us one dollar and fifty cents per ton for labor at our place. Iron could be made now for about two dollars less per ton, as our charcoal cost in 1873 and 1874 eight cents per bushel, and in 1875 seven and one-half cents per bushel, and now I could contract for it at six cents per bushel. I hope you will find all you may want in my statement.

I am yours, very truly,
STEPHEN S. GLIDDEN.

RECORD OF THE WORKING OF ALABAMA FURNACE.

BLAST OF 1873–4.

Number of working days of furnace	306
Tons iron made, furnace weights	5,907.8
Tons iron made per day, (average)	19.3
Bushels coal used during blast	666,445
Tons raw ore used during blast	13,214.52
Tons burnt ore used during blast	10,368.40
Tons lime used during blast	1,113.07
Cost of coal per bushel on bank	0.8
Ore per ton on bank	1.30
Lime per ton on bank	1.10
Number of bushels coal to ton of iron	113
Tons raw ore to ton of iron	2.24
Tons burnt ore to ton of iron	1.75
Tons lime to ton of iron	.19

Cost of coal for 1 ton of iron	9.04
Ore for 1 ton of iron	2.90
Lime for 1 ton of iron	.21
Total cost of stock for 1 ton of iron	12.15
Number of half charges in 24 hours, (average)	90.17
Bushels coal used in 24 hours, (average)	2,175.55
Tons raw ore used in 24 hours, (average)	43.13
Tons burnt ore used in 24 hours, (average)	33.84
Tons lime used in 24 hours, (average)	3.63
Bushels coal to half charge, (average)	24.12
Pounds burnt ore to half charge, (average)	852.75
Pounds lime to half charge, (average)	91.38
Per cent. of iron contained in burnt ore	.57
Height of furnace stack	41 feet.
Diameter of bosh	8 ft. 8 in.

BLAST OF 1874–75–76.

Number of working days of furnace	431.35-48
Tons iron made, furnace weights	8,937.97
Tons iron made per day, (average)	20.70
Bushels coal used during blast	1,024,433
Tons raw ore used during blast	20,443
Tons burnt ore used during blast	16,064
Tons lime used during blast	1,536.50
Cost of coal per bushel on bank	0.7½
Ore per ton on bank	1.30
Lime per ton on bank	1.10
Number of bushels coal to ton of iron	114.61
Tons raw ore to ton of iron	2.28
Tons burnt ore to ton of iron	1.79
Tons lime to ton of iron	.17
Cost of coal for 1 ton of iron	8.59
Ore for 1 ton of iron	2.98
Lime for 1 ton of iron	19c.
Total cost of stock for 1 ton of iron	11.76
Number of half charges in 24 hours, (average)	104
Bushels coal used in 24 hours, (average)	2,373
Tons raw ore used in 24 hours, (average)	47.35
Tons burnt ore used in 24 hours, (average)	37.20
Lime used in 24 hours, (average)	3.56
Bushels coal to half charge, (average)	22.83
Pounds burnt ore to half charge, (average)	812
Pounds lime to half charge, (average)	.78
Per cent. of iron contained in burnt ore	55 6-10
Height of furnace stack	41 feet.
Diameter of bosh	8 ft. 8 in.

Here is a frank and full statement of the actual workings and cost of making charcoal iron in Alabama. Charcoal iron is made all over the United States where ore, timber and limestone can be found; but I doubt whether any furnace outside of Alabama, can show such a record as this; and I here return my thanks to Col. Glidden for the frank and manly manner in which he has given to the public, through me, the valuable results of his labors in Alabama. The location and surroundings of his furnace, and the analyses of his ores, are fully written up by the State Geologist, in his report for 1875.

A man like Col. Glidden is a benefit to a people like those of Alabama, who have millions upon millions of ores of iron, and know nothing of their actual and real value, and have no capital, even if they had the knowledge, to engage in the business of iron making.

We come next to the limestone of Calera, and Cahaba Valley. The lime rock along this section of the South & North Alabama Rail Road—a distance of sixteen miles—is in great abundance, and from the analyses hereafter given, must be equal to, if not better suited for lime burning, than any in the United States. These analyses must be correct, and reliable, as they are about the same and made by several different parties.

"Calera has long been known for the excellence of the lime manufactured there. At present there are two kilns at that place under the superintendence of Mr. N. B. Dare. The rock is supplied from the formation under consideration.

"North of Calera are other kilns supplied from the same source. At Longview, section 19, township 21, range 2, west, is the kiln of Mr. James M. Reynolds.

"I give below two analyses by myself, of the limestone used by him.

"*No. 1. Compact drab-colored limestone, showing occasional crystalline faces; breaking with splintery fracture.*

Specific gravity	2.81
Carbonate of lime	99.11
Carbonate of Magnesia	0.75
Iron and Alumina	0.13
Siliceous matter	0.39
Total	100.38

"*No. 2. Very fine grained to compact. From same locality.*

Specific gravity	2 75
Carbonate of Lime	99.16
Carbonate of Magnesia	0.75
Iron and Alumina	slight trace.
Siliceous matter	0.15
Total	100.06

"Both specimens were tested for sulphur and phosphorus, and neither was detected.

"The limestone analyzed above, is from the upper part of the belt, and is probably one of the limestones of the lowest

Trenton, (Bird's eye or Black river.) Upon this point, however, the evidence of fossils is too scanty, as yet, to enable me to speak with certainty.

"All the limestones used for lime-burning at Siluria, Calera, &c., are practically the same in composition as the above. There are of course, slight local variations, but from a number of analyses from various sources, the carbonate of lime is between 95 and 99 per cent.

"The following analysis by Prof. C. F. Chandler, has been kindly furnished by Mr. Crafts:

"*Limestone from Mr. Jones', Section 28, Township 21, Range 2, west, on S. & N. Rail Road, near Longview.*

Carbonate of Lime	97.52
Carbonate of Magnesia	1.27
Iron and Alumina	0.35
Silica	0.78
Phosphorus	Trace.
Sulphur	0.00
Total	99.92

"Near Siluria station are the Rockland Lime-Works of Maj. Wagner. The kiln is in section 35, township 20, range 3, west. It is built upon Page's patent; the limestone is raised to the top of the kiln by means of an elevator, run by steam power.

"The Siluria Lime Works, Messrs. Holt & Co., are in section 2, township 21, range 3, west, about a mile from the station. The limestone is the same as that used by the Rockland Kiln."

There are seven or eight different lime kilns in this section, all using this rock; and I find, by inquiring of the proprietors of some of them, that they compete evenly and successfully in quality and price, at Mobile, New Orleans, Havana, and all the Gulf ports, with the celebrated lime from Rockland in Maine; and also at Nashville, Louisville and Atlanta, with all other lime made in the interior. The fuel used is wood, with the exception of one kiln at Siluria, running on stone coal, with results not known to the writer. For the business of lime making, I know of no other rock any where equaling this, and this industry must prosper here, if it does any where.

The Cahaba coal field is next reached at Helena. I have examined and worked, during the war, every coal vein of any

value as yet found in this field. The following general description given by Mr. Rothwell, at present editor of the American Mining Journal of New York, and a man in every way fitted by education and experience to judge, coincides so nearly with my own views on this coal field, that I insert it here, as taken from the State Geological Report for 1875. I fear I will not be able to have the diagrams to which he refers printed. They appear in the State Geological Report for this year, copies of which can be obtained by applying to the Governor, or Secretary of State, at Montgomery:

"Number and Thickness of the Coal Beds.

"The coal measures of the Alabama fields consist of a series of sandstones, conglomerates, and shales, among which we find some ten or twelve veins of workable thickness, *i. e.*, from two feet, (average thickness of clean coal,) upwards, besides a number of smaller beds, several of which are from fifteen to eighteen inches in thickness. These ten or twelve workable beds are distributed in two series or groups, as we find in all our coal fields, notably in West Virginia, Ohio, and Pennsylvania. The lower group contains seven or eight workable beds, varying in average thickness from three feet to seven feet of clean coal, and making an aggregate thickness of workable coal in the beds thus far proved of from thirty to thirty-five feet, while the upper or Montevallo series, which occupies but a very small area along the eastern side of the field, contains some three or four workable beds, giving an aggregate thickness of about twelve feet, making the total thickness of coal in the field, in beds of workable size, at from forty to fifty feet.

"Without describing in detail the peculiarities of the different viens, which would be out of place in a general paper of this kind, though of very great importance in determining on the establishment of mines, I may say that the veins of the Cahaba coal field are generally free from shale partings, that is, they form generally a single bench of coal, and in that respect will be found better adapted for clean mining than most of the beds of the Warrior field, where some of the larger viens have a number of shale bands running through them. The thickness of the largest bed, as yet proved in the Cahaba field, is about nine feet, but where examined, two feet of these nine formed a shale band, leaving the coal in two divisions of about five feet six inches, and one foot six inches; where, unfortunately, the thick bench comes on the top; the

probability, therefore, is, that the lower bench will be abandoned.

"Another vein, worked to some extent during the war, is represented to have a thickness of seven feet of clean coal. The good quality of the coal from this place is quite evident, for there still remains at the pit-head several hundred tons of it in large lumps, which have resisted very successfully the action of the atmosphere for some eight years now, having been all that time exposed to the sun and rain of a warm climate; and it is still so serviceable a fuel that many of the farmers send for miles to get it for their winter supply.

"The accompanying sections, one across the southern or widest portion of the field, the other across the basin on the line of the South and North Alabama Railroad, will give the general features of this field, and show the remarkable fault which limits the coal field on the south and east.—*See Geological Report 1875, p. 52.*

"The South and North Alabama Railroad section shows, also, one of those peculiar contortions in the rocks which we frequently find in the coal fields; it is very well defined at this point, and has the effect of greatly interfering with mining operations, for such plications are the results of a crushing of the measures, which makes the coal faulty and not unfrequently sulphury, even at some distance from the anticlinal and synclinal axes.

"The following are the workable beds proved on or near the line of the South and North Alabama Railroad. I place them in their order of superposition, commencing with the highest, the thickness being the average of clean coal where examined:

"No. 9.	Thickness..4 ft. 0 in.	No 4.	Thickness..3 ft. 8 in.
" 8.	" ..3 ft. 6 in.	" 3.	" ..3 ft. 3 in.
" 7.	" ..2 ft. 0 in.	" 2.	" ..4 ft. 0 in.
" 6.	" ..2 ft. 0 in.	" 1.	" ..3 ft. 6 in.
" 5.	" ..2 ft. 6 in.		
Aggregate thickness.....			28 ft. 3 in.

"It is true that at this point the measures are compressed, and these veins may become thicker as we get some distance away from the line of the greatest disturbance; in fact, in the southern portion of the field, we find the beds much larger, there being but little disturbance there. The developments thus far made are not sufficient to enable us to identify the beds in different parts of the field, but I give an approximate section of the measures in the "Four Mile Creek," as follows:

"4 veins Montevallo Group, agg'te	12 ft. 0 in.	V vein,	3 ft. 6 in.
VIII vein	3 ft. 6 in.	IV "	8 ft. 6 in.
VII "	7 ft. 0 in.	III "	3 ft. 6 in.
VI "	4 ft. 0 in.	II "	4 ft. 0 in.
		I "	4 ft. 0 in.
Total			50 ft. 0 in.

"There are probably other workable beds not yet known. We can assume the thickness of coal in the southern portion of the field at 35 to 40 feet in the lower group, and about 12 in the upper group.

"The great fault which limits this coal field on the east, has left none of the upper groups of coals, and, probably, not even the two highest veins of the lower group, on the line of the South & North Alabama Rail Road.

"While our data are not sufficient to identify the several beds in the different parts of the field, yet the dimensions of the veins I have above given are from openings made mostly during the war, when the needs of the Confederate Government caused it to make extensive surveys and examinations of the field, (the notes of these were unfortunately destroyed during the latter part of the war,) and to open mines in a number of places.

"The fact is, therefore, fully proven that Alabama possesses an abundant supply of coal in easily accessible beds of good workable thickness."

	NUMBERS OF SAMPLES.										Mean of 10 analyses of Cahaba coals from 8 veins.	Mean of 14 analyses of Indiana coals.—Cox.	Mean of 6 analyses of Ohio blk coals. Newberry.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.			
Specific gravity	1.22	1.29	1.29	1.38	1.29	1.28	1.12	1.28	1.25	1.35	1.26	1.24	1.266
Moisture	1.66	1.58	1.91	1.93	2.05	2.13	2.54	1.78	2.14	2.13	1.98	5.2	4.54
Volatile Combustible Matter	33.28	32.60	32.65	32.84	33.47	30.86	29.44	30.60	31.92	27.03	31.47	34.8	34.61
Fixed Carbon	63.04	62.62	63.91	59.64	62.20	64.54	66.81	66.58	63.68	66.22	63.92	57.2	58.68
Ash	2.02	3.20	1.53	5.59	2.28	2.47	1.21	1.09	2.26	4.62	2.63	2.6	2.17
Total	100.	100.	100.	100.	100	100.	100.	100.	100.	100.			
Sulphur as Sulphate	.097	.223	.071	1.001	.118	.320	.073	.085	.....	114	} 1.06	.....	0.87
Sulphur as Sulphuret of Iron	.428	.727	.559	2.779	.523	1.160	.455	.479	.....	.388			
Sulphur in Coke	.....	.....	.....	.....	.....	.....	.214	.223	.....	.....			

"Connelsville Coke," Pa..... 55 to 70 per cent.

Sample No. 1. From Cahaba Vein—Davis' Mine.
" 2. " " " Holt's Mine.
" 3. " Black Shale Vein—McGinnis.
" 4. " Moyle Vein.
" 5. " Little Pittsburgh Vein.

Sample No. 6. From Conglomerate Vein.
" 7. " Helena "
" 8. " Coke "
" 9. " Gholson "
" 10. " Montevallo "

The above table shows that the Cahaba coals are of remarkably fine quality, being chiefly distinguished for their dryness, small amount of ash, and large amount of fixed carbon.

"Some of the above coals make an excellent coke, suitable for blast furnace use, and as some of them are dry burning coals that do not coke, they would probably work raw in the furnace. Judging from the analyses alone, we would be inclined to consider all of the Cahaba as drier burning coals than those of Indiana or Ohio, while in reality the opposite is the case. The block coals of Ohio and Indiana, so largely used in the furnaces of the Mahoning Valley, do not coke in burning, while the Cahaba coals do, though the former contain about three per cent. more of volatile combustible matter, and nearly six per cent. less fixed carbon than the latter.

"It is noticeable that these Indiana and Ohio coals, ranked among the best furnace fuels we have in this country, contain on an average two and a half to three per cent. more moisture than the Alabama coals; in fact, the analyses would indicate that the Cahaba coal is a better fuel, and altogether an exceptionally pure coal. It has been fully proved as a steam generator, and the coke from several of the veins was used very successfully in the smelting of iron for the cannon foundry of the Confederate States, at Selma, during the war.

"It may be found that it will be desirable in the case of a few of the good coking seams to crush and wash the coal before coking, and this will be more necessary in the Warrior field than in the Cahaba, the veins proved in the former containing more soft shale partings which, in the mining, will break up and can not be separated from the coal.

"The coals of the Warrior field appear also to be softer and more friable in general than those mined on the Cahaba.

Warrior Field.

"There seems to be but little doubt that this field is composed of several basins; for want of proper explorations, however, their limits are almost entirely unknown.

"The enormous thickness of the coal bearing rocks in the Cahaba field, being estimated at over 5,000 feet, has no parallel in the Warrior coal field.

"We have very few analyses to give of the coals from this basin, except of those from the Newcastle and Black Creek Seams, and from seams in the vicinity of Tuscaloosa. For several of these analyses made for the survey by Prof. N. T. Lupton, the reader is referred to the Report of Progress for 1874.

"An analysis of the coal from the Newcastle or Milner Seam,

by Dr. Otto Wuth, of Pittsburgh, Pa., shows the following composition:

Specific gravity	1.38
Water	.50
Volatile matter	28.24
Fixed carbon	59.69
Ash	10.92
Sulphur	.64

"See further, the remarks on this seam, made above in our historical account.

"Of the black creek coal, we present also an analysis made by William Gesner.

"*Black Creek Coal.*

Specific gravity	1.36
Water	.12
Bitumen (volatile)	26.11
Fixed carbon	71.64
Ash	2.03
Sulphur	.10
Per cent. of coke	73.67

"Its physical characteristics classify it as a firm bituminous block coal, with cubical cleavage, dull vitreous lustre, and very restive to moisture."

We have as yet no description of the Warrior coal field, founded on facts obtained from practical developments made up to the present period. Borings have been made in various parts of this field, and large operations have been commenced since Mr. Rothwell left Alabama, and a large amount of practical information has been obtained, but as yet we have no man competent, or perhaps willing, to undertake the task of working up this coal field on the basis of the facts as they are now found to exist.

I will do the best I can, but as before stated, I am no geologist, and know as yet but little of any practical value on this subject. I have an interest in the Newcastle Coal and Iron Company's mines, located on the line of the road, ten miles north of Birmingham. Although in past years I have dug into and examined every coal vein of any value yet found within thirty miles of the railroad, I have learned only here anything practically of the Warrior coal fields, from the actual workings of the mines. This company is operating on

the southeastern edge or outcrop of the coal veins of the Warrior coal field. The railroad runs here along the outcrop of the conglomerate, which separates here the upper and lower coal formations. Lying above the conglomerate, the highest workable vein yet found is the Newcastle seam. Operations were commenced first on this seam by the Newcastle Coal Company, and some 200,000 tons have been mined and sent to market from this vein. This vein is five feet eight inches thick, including two hard strata of slate near the middle, of two and three inches thick, enclosing about five inches of coal. The bearing in, or mining, is done between these two slates, and being hard, they interfere but little with the clear mining of the coal. A slope has been sunk six hundred feet, inclining northwestwardly about six degrees at the surface, and coming at the bottom to less than one degree, or nearly on a level. It is mined cheaper than any other coal in Alabama, and a part of a cargo was shipped to Havana in 1873, and gave great satisfaction in that market, netting the miner here $2 00 per ton for the coal. The next workable coal below this, lying immediately above the conglomerate, is called the Sulphur vein, from what cause I don't know, as blacksmiths used coal from this vein altogether, for sharpening their tools, whilst we were building the railroad. It is about 42 inches thick. There has never been any analysis made of this coal, or any attempt made to open or work it. The next, called the peacock vein, about 130 feet below the conglomerate, composed of two strata of coal and of one foot three inches of slate, in the middle is 27 inches thick. The Black Creek vein, now operated by our company, lies about 200 feet below the conglomerate, is 32 inches of clear, solid coal, with good mining above and below. We have here an actual cross section, of perhaps 2,000 feet of outcrop, the only *actual* cross section yet examined, in this field, to this extent. The veins here lie remarkably even and regular, and are easily mined. Five mile creek, crossing the southeastern outcrop of the Warrior coal field, at Boyles Gap, four miles below Newcastle, and running northwestwardly at right angles to the strike, to the Locust Warrior, and Lost Creek, rising on the northwestern outcrop of this basin and running southeastwardly, and meeting Five Mile Creek and emptying

into the Mulberry Warrior, both creeks cutting a channel for themselves deep into the strata, and falling faster than the strata themselves, present a most admirable opportunity for studying and identifying the strata of the Warrior coal measures. These streams present the *only* opportunity for such an examination, and I trust some one, competent and capable, will make the examination. I have for years hoped that some one would take hold of this matter, and work it out properly. The Cincinnati anticlinal is felt, in the gentle uplifting of the coal strata on the northwestern dip of the Alabama coal fields. The eastern dip is caused by the Jones Valley anticlinal, which has brought to the surface, with the limestone, the Red Mountain—the most extensive and valuable deposit of iron ore in the world. All the coals on the eastern, or Red Mountain, outcrop of the Warrior coal field, are coking coals, whilst those on the northwestern outcrop, so far as I have examined, are the splint coals of Ohio, uplifted here, as there, by the Cincinnati anticlinal, and are identical in character and composition. The measures lie gently sloping, or nearly level, all over the Warrior coal field, and are classified and understood nowhere except in small areas around the various operations now being carried on here. I have written to the various operators along the line of the road for information of any kind relating to their operations, but I have received no response from any, except from Col. Sharp, Superintendent of the Newcastle mines, and Col. Aldrich, of the Montevallo mines. I give their statements here, and endorse them as true. The analysis of other coals found here will be given in the letter kindly furnished me by Mr. Thomas, Superintendent of the Eureka Iron Company:

John T. Milner, Esq.:

DEAR SIR—In reply to your letter of 18th, calling for information concerning the mining operations of the Newcastle Coal and Iron Company, would remark that for the year ending June 30, 1876, our output of coal has been but little over 19,000 tons, and this amount mostly from the Black Creek mines. At the Newcastle mine, we have a capacity for over 50,000 tons per annum, but no market for the coal; nor do we anticipate one until the iron business has been further advanced. This coal is specially adapted to rolling mill use, several thousand tons having been successfully used in that

way. But the distance from the points of consumption with the large intervening cost of freight, presents its general use for that purpose, until mills nearer home go into operation. We have proposed to deliver this coal at Birmingham at $1.75 per ton. When coal for mill use will be required in this region of Alabama, the Newcastle coal, on account of its adaptability, cheapness, and facilities for producing large amounts, will no doubt be largely mined, and contribute in no small degree to the production of *cheap iron.*

The great need we feel, in common with other mining operations, is the want of a manufacturing demand. The principal demand for coals is for domestic purposes, that representing the almost entire demand outside of what is required for locomotive fuel.

We submit an analysis of Newcastle coke, from Prof. Gesner. Also, an analysis of Etna coke by same chemist.

The Etna coke, as you are perhaps advised, is claimed to be the best and strongest furnace fuel of any of the Tennessee cokes. We also append analysis of Connellsville coke by Prof. Wuth.

Coke Analysis by Prof. Wm. Gesner.

Etna.		Newcastle Washed Coal.	
Moisture	0.67	Moisture	0.28
Ash	16.18	Ash	14.13
Sulphur	.84	Sulphur	.16
Fixed Carbon	82.31	Fixed Carbon	85.43

Connellsville Coke by Dr. Wuth.

Moisture	0.42
Ash	12.87
Sulphur	.27
Fixed Carbon	86.41

It will be seen by comparison, that the Newcastle coke contains a larger per cent. of fixed carbon and less ash and sulphur than the Etna coke, and nearly as large a per centage of fixed carbon, with a smaller per centage of sulphur than the Connellsville coke. Taking Etna coke as representing the best production of Tennessee, and Connellsville as the standard of Pennsylvania cokes, we find the Newcastle coke superior to the average of those named.

We take special pleasure in furnishing the following reports of practical test, that the distant reader may, by comparison with coals of which he is familiar, appreciate the excellent qualities of Alabama coals. The general adaptability of Black Creek coal only indicates the general character of a number of the principal coals on the line of, and adjacent to, the S. & N. R. R.

Hardly more than 2½ feet coal do we find in the Black Creek mine, which seems to be the approximate size of the veins yielding the best coals. The great future demand will doubtless be for coking coal, hence an increased cost over working larger veins.

When a summer, as well as winter's business, can be relied on, the output can be increased to such dimensions that a manufactory price of six cents per bushel may be established. This will give us cheaper fuel than England makes iron with, considering quality of fuel.

You will doubtless get from Mr. James Thomas the result of Black Creek coal and coke in the production of metal. We learn, however, that the quality is unobjectionable. For the value of this coal for gas making, for smith uses, and for steam purposes, append the following reports. As a household fuel it is unnecessary to furnish any, as its character is well known in Alabama, Georgia, Mississippi and Tennessee.

Test made at Louisville, Ky., by Thatcher Perkins, Master Mechanic.

	lbs. water evaporated with 1 lb. coal.	per ct. ash.
Black Creek.....	8.01	10.03
Pittsburgh	7.44	13.00

Mr. Albert Fink, Vice President and General Superintendent, says, in reference to the test, in speaking of Black Creek coal: "This shows that the coal is superior to any that we have tried, both in heating power and small quantity of ash."

Thomas Jeffers, M. M., recently at Birmingham, says: "Having tested your Black Creek coal in various ways, take pleasure in pronouncing it the best coal for general use, I have ever used, and find it free from slate and dirt, with no clinker.'

Anthony Ross, M. M., Memphis, reports: "I have tested the Black Creek coal on both passenger and freight engines, and find the same of excellent quality for steaming purposes, burning a clear fire and leaving very little cinder, if any."

James B. Brown, M. M., Vicksburg, says: "I have thoroughly tested the Black Creek coal and find it equal to any I have ever used for blacksmith purposes."

James McKay, Captain Steamer Valley City, writing from Pensacola, Fla., says: "You are at perfect liberty to use my name in any way to recommend the coal for steaming purposes."

Tests of different coal, made by chief engineer Nashville water works, with the following results:

Name of Coal.	Bushels coal used pr hour.	Galls. pumped per bush'l.	Per cent.
Hecla Coal—would not keep up steam	.....	.....	.....
Fleming Coal	18 12-14	7,483⅓	16
Eureka Coal	18½	8,793⅔	21½
Sewanee Coal	19 25-26	7,570⅓	19
St. Bernard C'l—would not keep up steam	.....	.....	.....
Black Creek Coal	15 23-31	9,995⅔	15

Test was also made, by order of Secretary of Navy, at Pensacola Navy Yard, in which Black Creek coal was found to be superior to Cumberland, both in heating power and small quantity of ash, as appears from the following test:

NAVY YARD, PENSACOLA, FLA.,
February 5, 1876.

Sir—In obedience to your order of the 14th January, 1876, we have tested the sample of Black Creek coal and report:

The only means of ascertaining the steaming qualities of the coal, at our disposal, were a comparative trial with some known coal performing the same work.

For this purpose the George's Creek, Cumberland coal, heretofore used in the machine shop boiler of steam engineering department, was selected, and a trial of each made in that boiler for one week, with the following results:

Total number of pounds of Black Creek coal used in six days' steaming	6,543
Average number of pounds used per hour	45.3
Total number of pounds of ashes and sweepings from flues	360
Total number of pounds of George's Creek coal used in six days' steaming	7,086
Average number of pounds used per hour	49.2
Total number of pounds of ashes and sweepings from flues	650

The accumulation of soot in the tubes of the boiler, (while using the Black Creek coal,) was very slight, not exceeding that from good anthracite coal for the same period, and with no apparent injury to the metal of the boiler.

In order to test the availability of the Black Creek coal for smithing purposes, a sufficient amount was distributed amongst the blacksmiths working in the navy yard, and they have all reported its smithing qualities excellent. Several large welds were witnessed by members of the board.

This coal appears to contain but little sulphur, and the board is of opinion that its steaming qualities are excellent,

particularly when considered in reference to the small amount of ashes remaining after its consumption.

Respectfully submitted,

J. F. McGLENSEY,
Commander U. S. N.
L. J. ALLEN,
Chief Engineer, U. S. N.
C. A. HIGGINS,
Foreman Ste'm Eng. Dep't.
JAMES McDONALD,
Foreman C. & R. Dep't.
JOHN COSGRIFF,
Blacksmith C. & R. Dep't.

George H. Wells, Esq., superintendent Nashville Gas Works, writes, " that a 15 candle gas, with a 4.80 foot yield, can be easily produced. The principal feature in this coal, is the excellent quality of coke it produces, being equal to any I have ever used. The amount of sulphur and clinker is very small, In fact the clinker is so small that, if I were using it constantly, there would be no necessity of cleaning the furnaces more than once in 48 hours, whereas we are obliged to do this work every 12 hours, (using Pittsburg coal).

Yours truly,

THOS. SHARP.

LETTER FROM T. H. ALDRICH & CO.

MINES, MONTEVALLO, ALA., }
August 24, 1876. }

John T. Milner, Esq., New Castle, Ala.:

Dear Sir—Your letter asking for information in regard to various matters connected with our mine is received. We are pleased to respond.

* * * * * * *

Our present production is ninety tons per day, but our capacity is about two hundred tons per day. We work all summer and stock, as our coal stands exposure excellently.

Our shipments last year were about sixteen thousand tons. We expect to ship about twenty-two thousand this year. About seventy-five per cent. of our coal is burned for domestic use. The balance for steam. The tests and experiments made by the Alabama Central Railroad Company and the Selma, Rome & Dalton Railroad, has led to their adoption of it for their locomotives.

We append below certificates of tests made under the direction of the Secretary of the Navy, at Pensacola, Fla., and elsewhere.

"COPY."

NAVY YARD, PENSACOLA, FLA.,
December 20, 1873.

Commodore M. B. Woolsey, U. S. A., Commandant:

Sir—In obedience to your order of December 15, 1873, we have tested the coal referred to, and find it to be clean and free burning, making steam rapidly, with no clinker and very few ashes, and believe it compares favorably with the Cumberland, now used in department of steam engineering.

Very respectfully,

A. A. SEMMES,
Captain, U. S. N.
WM. J. LANDIN,
Chief Eng'r, U. S. N.
WM. H. VARNEY,
As't N. Con., U. S. N.

"COPY."

U. S. S. POWHATTAN, SECOND RATE,
KEY WEST, FLA., April 16, '74.

Capt. J. C. Beaumont, Commanding:

Sir—The following is the result of two days' trial in the steam launch of the bituminous coal received at Pensacola from the Montevallo, Ala., mines:

Coal used in pounds	863
Water " " "	7,996.8
Water evaporated per pound of coal	9.26

The coal burns freely, caking slightly and making no clinker, and apparently but small per centage of ash. It was impossible to ascertain the amount of ashes, as the greater portion was discharged through the smokepipe by the exhaust of the engine. With a boiler suited to burn bituminous, and natural draught, the result would be more favorable. The coal was found to be poor for blacksmithing purposes.

W. W. DUNGAN,
Chief Eng'r, U. S. N.

We will simply add that our coal is classed as a non-coking, free burning and very dry coal, very similar to the block coal of Indiana.

Yours, respectfully,

T. H. ALDRICH & CO.

I will also refer here to the results of borings made some years since in several parts of this coal field, that may be useful hereafter in studying and identifying the strata. (See

Geological Report for 1876, pages 66 to 74, for this information.)

These borings seem to have been made with reference to no well defined object, as they are incomprehensible and explain nothing away from the spots where they were made. Large operations are carried on at Warrior Station, the largest in the State. I know nothing of the analysis and character of coal, except that it answers well for steam purposes.

A shaft is now being sunk at Morris' Station by Messrs. Holt, Aldrich & Morris, young men of the right stamp, who know what they are at. They are expecting to reach the Black Creek vein, now worked by the New Castle company. If this is true, this valuable vein covers a large area of country here.

Notwithstanding the many theories and examinations made of this field, we know now, literally, nothing of its economic value. We only know that there is coal enough now in sight to answer all the probable wants of this generation. It is my opinion that the workable beds along the line of this road, crop out north in the little valley at Phelan Station and can be found by going southwestwardly some twenty miles and tracing them up. The reason for this is found in the fact that only the bottom coal measures are found north of this place, and I know, going southwestwardly along the little valley from Phelan, the upper series of strata are seen in high mountains on the left, and still farther down coal is found in these mountains.

The market for coal, for domestic and steam purposes, is increasing slowly in Alabama, owing entirely to the distracted and impoverished condition of the people in this and the surrounding States. Tennessee and Georgia are recovering slowly, and furnish better markets now than Alabama, Mississippi and Florida. The coal mined and shipped over the South & North Alabama Railroad for the year ending July 1, 1876, including that mined at Montevallo, was 97,000 tons, The annual increase now amounts to nearly $33\frac{1}{3}$ per centum. and though several experimenting companies have failed, either for want of capital or some other cause, the business of coal mining on the line of this great thoroughfare is in a growing and healthy condition. Their success is due mainly

to the great effort now being made by the railroad management to forward and develop this business. As yet but little has been done towards securing a market for our coals in the Gulf of Mexico. Tests have been made by the government at Pensacola Navy Yard, and by merchant steamers at Mobile, Pensacola, Havana and Key West, with the most flattering and satisfactory results, as seen from Col. Sharp's letter. The coal operators in Alabama are too poor to embark, as yet, in the trade of the West Indies and the Gulf. The entire capital of all the operators here has been made within the last five years from the local business done here, and is too small to engage in business requiring outside capital. The railroads have exhibited a commendable zeal in the experiments heretofore made. About 5,000 tons of our coal have been consumed in the Gulf in experiments and trials within the last five years. But we are at a point now where *capital* is required to prosecute this business to a successful termination. D. H. Cram, Esq., formerly president of the Louisville & Pensacola Railroad Company, has collected a vast amount of information and published a valuable report on this subject. The Mobile Board of Trade, the only intelligently progressive organization in the State, has also taken hold of this subject. They say in their last annual report:

"The opening of direct trade with the tropical and semi-tropical countries, which are so immediately connected with us, would invite a large portion of those immense imports which amounted last year, in total—

From	Brazil	$38,558,028
"	Central American States	1,981,322
"	Danish West Indies	465,258
"	French West Indies or French Guinea	33,977,524
"	British West Indies	3,802,301
"	British Guinea	3,214,273
"	Hayti	1,741,497
"	Mexico	16,430,225
"	Dutch West Indies	1,192,313
"	San Domingo	518,928
"	Cuba	77,469,826
"	Porto Rico	7,985,831
"	United States of Columbia	6,410,964
"	Uraguay	3,571,376
"	Venezuela	5,548,526
		$202,888,192

"At least $134,000,000 of these imports were consumed in the Mississippi Valley, but, notwithstanding, we find entering by the Gulf ports, from—

Mobile, imports	$1,097,164
N. Orleans "	19,933,344
Texas "	2,426,626
	$23,457,134

"At least $10,000,000 of all the imports from the countries above named, must have been consumed by the people of Alabama, Mississippi and West Tennessee, whose trade naturally belongs to Mobile; and yet we find Mobile introducing not one-tenth of the supplies demanded and needed in her immediate tributary country.

"Such is the value of the products furnished the United States by our Southern neighbors.

"The value of the articles exported by the United States in return for such vast wealth, reaches an enormous amount. They consist chiefly of those agricultural products which now concentrate so largely at St. Louis, the most important of which is wheat flour.

TOTAL VALUE OF DOMESTIC EXPORTS.

"To Brazil	$ 7,093,187
Central American States	1,279,329
Danish West Indies	1,156,126
French West Indies	1,134,795
British West Indies	7,480,284
British Guinea	1,638,115
Hayti	4,106,124
Mexico	4,084,816
Dutch West Indies	954,852
San Domingo	748,122
Cuba	15,231,039
Porto Rico	1,995,511
United States of Columbia	5,317,001
Uraguay	1,836,421
Venezuela	2,848,599
Other South American Ports	76,202
	$57,980,523

"For more convenient reference these facts are recapitulated thus:

IMPORTS FROM SOUTH AND CENTRAL AMERICA, MEXICO AND THE WEST INDIES.

	Value.
Imports of coffee, 264,510,462 lbs.	$29,800,327
" of fruits, &c.	1,215,262
" of sugars and molasses	92,618,004
" of tobacco	9,763,312
	$143,396,905
Imports of all other products	59,491,287
Total imports	$202,888,192

EXPORTS TO SAME COUNTIES.

	Value.
Exports of flour, 1,279,643 lbs.	$10,722,435
Exports of bacon and hams, 10,220,878 lbs	1,107,397
	$11,829,832
Other exports	46,150,691
Total exports	$57,980,523

"The balance of trade, which is thus largely against us, can only be turned in our favor by shipping flour and *coal* to our southern neighbors, through the Gulf ports, instead of permitting Great Britain to pay our debts in that direction, and gather the fruits of commissions and profits."

Mr. Cram says, in regard to coal and fruit shipped to and from Cuba:

"*Coal.*—The imports of coal into Cuba during 1871 were 315,000 tons. Of these, only 16,932 tons, or less than six per cent., American—the remainder being English. But this state of affairs has been wholly changed. English coals now cost 28 s. to 30 s., and freights range from 17 s. to 18 s. per ton, making the coal cost about $15 alongside in Cuba. There is no probability of English coals regaining their supremacy, even under a decline at home, for the reason that heretofore, while the bulk of the Cuba sugar crop went to Europe, vessels chartering for the round trip would carry out coals very cheaply, as it freed them from tonnage dues, and they relied for their profit upon a return cargo of sugar, at 50 s. to 60 s. or more per ton. Last year, however, the United States took 68 per cent. of the sugar crop, and this year will probably take more, so that a vessel out from England with coals can not meet a full cargo of paying freight, if indeed she can secure any at all. In most cases such vessels will be compelled

to go in ballast to some cotton port to load. They must, therefore, have a *paying freight* for coals.

"The recent completion of the South and North Alabama Railroad insures the development of the Alabama coal fields, to a degree commensurate with their great extent and richness, and permits the shipment to Cuba of coals at figures which ($2 at mines; $6 at Pensacola; $9.50, or $8.34 gold, at Havana,) will yield a profit of $3.66 *per ton, gold, as compared with present prices of American coal.*

"It forms no part of our present purpose to deal with the coal question, further than to demonstrate that a profitable margin exists for the small quantity that we propose to carry.

"There are no coal mines as close to Cuba as those of Alabama. There are no mines in the world that produce better bituminous steam coals, and no shorter line can ever be had than the one we seek to establish. With a coal famine at one end, an inexhaustible supply of the exact coal needed at the other, and the shortest transit line between the two, a proposition to supply not even *one hundredth* of the quantity now consumed needs no argument as to the successful result.

"*Fruit.*—The shortness of the route *for all the leading markets of the North and West*, and the easy means of trans-shipment at Pensacola, directly from the ship into cars, will give the new line unrivalled advantages for the transportation of fruit. The fruit imports into the United States during 1871 amounted to $9,602,630, of which about 72 per cent. was entered at New York. One-third of these importations was sold in the interior, at points as easily accessible from Pensacola as from New York, and it must be apparent that if two cargoes starting simultaneously from the West Indies, one for New York and the other for Pensacola, the latter will have arrived, been distributed, and eaten up, before the former reaches its destination. A serious drawback to this trade hitherto, enhancing the cost of tropical fruit and diminishing its consumption, has been the waste and losses which are unavoidable so long as shipments continue to be made through indirect and unnatural channels.

"*Coal.*—The derangement of all Mexican customs, statistics, and the absence of any, at all other points, with the exception of Cuba, and Jamaica, have prevented ascertaining the quantity of coal consumed in the Gulf. The records of Cuba, however, show that during the year 1872, the four cities, Havana, Matanzas, Cardenas, and Cienfugos, used 315,000 tons. Very little of this coal came from the United States, and nearly all of it from England, where it was not only cheap, but was brought out at a nominal rate, in vessels coming for sugar, which would otherwise have come in ballast. Since three-fourths of the whole sugar crop now comes to the

United States, English coal can no longer be freighted out to Cuba cheaply. This price, and the rising price of coal at home, forbids the possibility of its much longer competing with American coal. Directly on our line, in Alabama, are some of the most extensive, and valuable coal fields in the country, all yielding the exact quality needed in Cuba; and as they are the nearest coal mines to Cuba, and as our line forms the shortest route that can ever be established, and has the most complete dock facilities in the Gulf, for handling coal, it seems certain, that at no distant day, this business, amounting to 125 loaded cars per day, will pass over our line."

Here is a basis for coal operations, in this direction, and I trust our great railway lines will take hold of this proposition, and divert a large portion of this trade through Alabama. The annual imports, from the island of Cuba alone, to the United States, as can be seen from the above tables, amount to $71,469,825, and the exports to only $15,231,039. There is a balance of trade against us, that must be filled up in some way. Alabama can only send coal, iron, and lumber. At Pensacola, and Mobile, she has the only seaports on the Gulf, where the exportation can take place. The towage, and extra port charges at New Orleans, amount to from one to two dollars per ton, and keep the Pittsburg coal out of the West Indies. Philadelphia and Baltimore supply, now, all the American coals going to the West Indies. Great Britain supplies the great bulk, amounting to 94 per cent. of the whole, according to Mr. Cram, notwithstanding she always has a balance of trade against Cuba. We pay Cuba gold for our balances, and she pays gold to England for coal, iron and general merchandise. We are furnishing timber, but that counts money very slow. *We can furnish the coal, as the shipments already made, show.* We will see, now, about the iron, and probably we can beat England, here; and *we can.*

We will now return to Birmingham, and end, here, our reference to the minerals of Alabama. Birmingham is situated on an anticlinal, called Jones' Valley; extending, here, over one hundred miles in length—it is, usually, from three to five miles wide. The limestone appears on the surface of this valley. The upheaval that brought these limestones to the surface, along this narrow line of one hundred miles, separated the coal strata that once covered this valley over; and

the Warrior, and Cahaba coal fields are now found propped up, at their edges, against the east and west bounding sandstones of this valley. This upheaval also brought to the surface, here, the Red mountain, throughout its whole length containing the largest, and most valuable deposits of iron ore in the world. This ore is red fossiliferous, stratified, and easily mined. Twenty-two miles south, and lying on the Alabama & Chattanooga Rail Road, are found extensive and valuable deposits of Brown Hematite ore. Ten miles north, on the S. & N. R. R., is found an extensive deposit of black band iron ore. There has been so much written about this section of Alabama, that I will say but little, and will take the reader immediately into the region of results, and let them speak for themselves. The hypothetical era in iron making has passed by in Alabama, now. Mr. James Thomas, Superintendent of the Eureka Iron Company, has kindly furnished me a statement of the workings of his furnace, at Oxmoor, for the three weeks ending, April 15, 1876. Iron masters will understand the various terms, and may rely on their being absolutely correct, and from the books of the company. Mr. Thomas has also furnished me with an analysis, made by Mr. A. W. Kinzie, a gentleman of life-time experience in iron making, in Pennsylvania and elsewhere. The coking operations of the Eureka company are based entirely on his analyses, and I indorse them as correct, from my knowledge of the man, and the circumstances attending his examinations. The Eureka furnace was in blast only seven weeks at first, having burnt out the hearth made of fire-bricks. They are running again, now, with native sandstone as a hearth, and doing well. This is the first effort at making coke iron in Alabama.

OXMOOR, ALA., July 30, 1876.

Mr. John T. Milner:

DEAR SIR—Permit me to submit the following in answer to your questions:

Yield of Furnace No. 2, of the Eureka Company, for the three weeks ending April 15th.

Amount of iron made..... 606 tons.
" " coke to the ton of iron... 1 ton 5 cwt. 3 qr.
" " limestone to the ton of iron, 9 cwt. 3 qr.
Yield of ore 57 per cent.

The quality of the iron was fair foundry and mill, slightly cold short. The ore is now costing us $1 00 per ton, delivered at the furnace.

The coke is now costing $3 00 per ton delivered at the furnace.

The limestone 85 cents.

The ore we are using is Red Hematite, and is gotten from the Red Mountain, less than three miles from the furnace.

The following is an analysis of it:

Proxide of iron. . . .77.07 per ct. Metallic iron 53.95 per ct
Oxide of Manganese. . . .Strong trace.
Silica 13.19
Alumina 3.35
Carbonate of Lime 1.50
Combined Water.. 2.75
Organic Matter. . . . . .Trace.
Phosphoric Acid.. .51 Phosphorus 22-100 per cent.

The larger per centage got in the furnace is owing to the ore being more carefully selected than for the chemist.

It will be no exaggeration to say that the amount of ore in the mountain is inexhaustible.

The limestone is contiguous to the ore, underlying it. The following is its analysis:

Carbonate of Lime. . . . . .92.620 per cent.
Carbonate of Magnesia. 2.310
Silica 2.740
Alumina and Oxide of Iron. 0.550
Combined Water and Organic Mat'r. 1.000
Sulphur 100
Phosphoric Acid. 016

We have used coal from the Cahaba and Warrior Basins. The area of the two basins is 5,250 square miles. The following is the analysis of some veins:

COALS.

Examination of samples of certain Coals as below; as to some of their properties, November 30, 1875.

Description of Coal, or name.	Locality of Mine.	Volatile matters—per ct.	Ash—per ct.	Fixed Carbon—per ct.	Coke—per ct.	Sulphur on Coal—per ct.	Cubic ft. of gas per lb. (7,000 gr's) coal at 60° F
Wadsworth Mine..	Cahaba Fields..	34.60	4.87	60.53	65.40	.68	6.20
Helena Mine.....	do. do...	34.37	6.05	59.58	65.63	.66	5.50
Shortridge Vein...	do. do...	37.50	4.12	58.38	62.50	.55	6.49
Black Shale Vein...	do. do...	32.26	10.45	57.29	67.74	.85	6.04
Buck Vein.....	do. do..	35.80	11.01	53.19	64.20	.82	6 16
Black Creek Mine..	Warrior do...	31.25	5.63	63.12	68.75	.89	5.93
Gould's Mine.....	Cahaba do...	31.00	7.29	61.71	69.00	.82	6.34

REMARKS ON THE ABOVE.

QUALITY OF COKE.

From the Wadsworth Mine, very excellent.
From the Helena Mine, very excellent.
From the Shortridge Vein, very good.
From the Black Shale Vein, good but considerable ash.
From the Buck Vein, very poor coking qualities.
From the Black Creek Mine, very excellent.
From the Goulds Mine, very good.

The workable veins are numerous, ranging from two to ten feet in thickness. I know of veins of ten feet in thickness in both basins. There are veins of excellent Black Band ore in the Warrior Basin. The vein from which the ore was taken for the following analysis is sixteen inches in thickness, and on the lands of the New Castle Coal and Iron Company:

Proto-Carb. of Iron..75.75 per ct., Met. Iron 36.38 per ct.
Oxide of Manganese..... Trace.
Silica..... 5.33
Alumina..... 5.50
Carbonate of Lime.. 5.05
Carb. of Magnesia..... Trace.
Carbonaceous Matter. 5.10
Combined Water.... 2.26
Phosphoric Acid..... .63—Phosphorus 27-100 per ct.
Sulphur..... Trace.

When Calcined.

Volatile Matter..... 32.93 per cent.
Non-Volatile Matter..... 67.07
Metallic Iron in Calcined Ore...55.28

Twenty miles southwest of this place are the largest deposits of Brown Hematite Ore known in the United States. The following is the analysis of the ore taken from one of the deposits:

Proxide of Iron . . . . 76.86 per ct., Metal'c Iron 53.80 per ct.
Oxide of Manganese . . . . . Trace.
Silica. 3.55
Alumina 2.95
Carbonate of Lime. 5.50
Phosphoric Acid . . . .35—Phosphorous 15-100 per ct.
Combined Water . . . 10.25

It can be mixed and put on cars for $1.00 per ton.

There is no place known in the United States where iron can be made so cheaply as in this locality.

Your's truly,

(Signed,) JAMES THOMAS.

I am not capable of commenting on these figures and statements, but will add a few words on the subject of iron making here. The Red Mountain ore extends here over one hundred miles on each side of Jones' Valley, and furnishes one hundred furnace sites with ores and facilities similar and equal to those at Oxmoor, and what this company is now doing can be duplicated one hundred times in Jones' Valley alone. This furnace is now running, after repairing the hearth with sandstone, found here in great quantities and easily obtained. A few days ago, I went down to the furnace. I found the yield over thirty tons of, as I was told, a good grade and quality of iron. At any rate, it was shipped off as fast as it got cold enough to handle. I noticed this iron was being shipped to Louisville and Cincinnati, and the President informed me that he had orders for thousands of tons more than they could make. I don't know what they get for their iron, nor do I know the rates of freight they pay, but it is strange to see a coke furnace starting at this depressed period in iron making and shipping their product to a country surrounded with iron furnaces *standing now idle.* But such is the fact. This iron is being made here now at a cost of less than *ten dollars per ton* for labor and materials. In looking around, I find this progressive and well managed company already building a new and larger furnace, 16 feet bosh, within a few feet of the furnace now running. These people must have confidence in their ability for making money here or they would not be laying now the foundations of a new and larger furnace, when the iron world is so depressed everywhere else. The superior facilities of this region for the

manufacture of iron have been well understood by the most intelligent and best informed men on this subject, in Europe and America. I will give only the statements of Hon. Abram S. Hewitt, of New York, the leading iron man in America, and of Mr. J. Lowthian Bell, the leading authority on iron making in Europe. The statements of these two gentlemen clearly foreshadow what Mr. Thomas has fully demonstrated, that here at Birmingham we have reached the *bottom cost of iron making in the world.* Mr. Hewitt says:

"The region of Alabama to which our attention has been called to-night, is, unquestionably, the most interesting region in the United States, with reference to the interests of iron manufacture in this country. It is, in fact, the only place upon the American continent where it is possible to make iron in competition with the cheap iron of England, measured not by the wages paid, but by the number of days labor which enter into its production. The cheapest place until now on the globe for manufacturing iron is the Cleveland region in Yorkshire, England. The iron produced from a fossiliferous ore, containing phosphorus, making it cold short, costs them about 32 English shillings on the average per ton, which represents about ten days labor. The distance of the coal and the ore from the furnaces averages them about *twenty miles.*

Now, in Alabama, the coal and the ore, in many places, are within a *half mile* of each other. The sandstone formation thins out towards the south, and in Tennessee and Alabama appears to be replaced by this bed of fossiliferous iron ore, which commences in New York with a thickness rarely exceeding two feet, but steadily thickens towards the south, averaging four feet in Pennsylvania, seven or eight feet in Tennessee, while in Alabama, probably because the formation was crushed back upon itself in some way, there are places where the iron has been measured *one hundred and fifty feet* in thickness.

The manufacture of iron is carried on, as yet, in rather a crude way in Alabama, but the cost of the iron is only about ten days labor to the ton, or not far from the labor cost in Cleveland. Throwing aside, then, all questions of tariff for protection, here is a possibility upon the American continent of producing iron at as low a cost in labor as in the most favored regions of the world, and allowing for the expense of transportation to compete with them, paying a higher average rate of wages than is paid in Great Britain.

The consumption of iron is increasing at a rate so wonderfully rapid that, in ten years, it will be impossible for Great

Britain to supply the demand. There is no other country in the world which can make iron as cheaply as Great Britain. In fifty years, then, the United States must be the source from which the iron of the world will be derived. Instead of importing a million of tons per annum, as we do now, in fifty or a hundred years we shall export five or ten millions per annum. This region, so exhaustless in supplies, so admirably furnished with coal, so conveniently communicating with the Gulf, will be of infinitely more consequence to us for its iron than it ever has for its cotton. There is the foundation for an industry, and a prosperity, which no curse of slavery, nor rebellion, nor interference with commercial laws can ever overturn. *I think this will be a region of coke made iron on a scale grander than has ever been witnessed on the habitable globe. The present production in the Cleveland region, where in 1833 there was not a furnace, is now two million of tons; and very soon it will be four millions. The production here will far exceed that.*"

The last words in the above extract are italicized. They are now written with ink only. In a shorter period than that given, these prophetic words will have become a part of the history of Alabama.

On account of the increased production of iron in America, and the consequent falling off in the exportation from Great Britain to the United States, Mr. Bell was sent out as the head of a commission by the iron producers of Europe to examine into the probable capabilities of America in this direction. After visiting and examining minutely, and in detail, all the iron-making localities of America, he returned to Europe, and made his report to the association of iron producers of Europe. Mr. Bell, after reviewing the whole situation, and satisfying himself that England has nothing to fear from the competition of iron-makers in the Northern States, says:

"So far, I am taking no account of the comparatively undeveloped resources of Tennessee, Georgia, and Alabama, which will, as I have already indicated, prove a match for any part of the world in the production of cheap iron. * * *"

"In a political point of view, no argument can be, as I believe none can be, advanced by the North against the development of the iron resources of the Southern States, and yet it is by no means impossible that some less favorably situated works in the former may suffer more by the competition,

which, before long, may spring up nearer home, than from any that we, in this country, are able to offer. * * * * There seems every reason for believing that pig iron can now be laid down in the Southern States, mentioned above, (Alabama, Tennessee, Virginia, and Georgia,) at little above half the cost of that made in the North."

Mr. Bell, describing some of the facilities for iron making around Birmingham, further says of our ores—first of our red ores, as follows:

"That of Alabama and Tennessee is known as the red fossiliferous ore, and lies in regularly stratified beds among sandstone and shale, resting on a Silurian limestone.

"In one instance, I ascended a hill 300 or 400 feet high, in which the measures were lying at an angle approaching 30 degrees. The uppermost rock is sandstone, in some places only a few feet thick, and underneath it lies a seam of the fossiliferous ore from eight to thirty feet in height. I walked some distance along the crest of the hill, which is a bluff or precipice of this mineral, varying from eighteen to twenty feet."

Of the brown ores, as follows:

"On the line of the Alabama & Chattanooga Railway brown hematite exists, apparently, in enormous masses. I say apparently, because it has not been opened out in any one place on a sufficiently large scale to enable us to judge accurately of the extent of the deposite. I walked along the lands owned by the Alabama Central Iron Company for many hundred yards. They are in the low ground and had been explored by small excavations down to the vein, in all of which solid ore is met with.

"A little to the south of this is an ore deposite, the property of the Pioneer Iron Company. It consists of a rounded hill, on ascending which, when within 150 to 200 feet from the summit, boulders of brown hematite are seen on the surface, and the water courses exhibit the rock composed of solid ore. The barred masses, forming the crest of the hill, appeared passing into a more silicious form of the mineral. In one or two places excavations have been made and a face exposed of solid ore, very much resembling that to be seen at Somorrostro in Spain.

"From this locality I walked through forest lands for fully a mile, and judging by the loose blocks and occasionally solid rock open to view, the summits of the eminence consisted also of this brown hematite."

Speaking of the unexampled facilities for iron making in Georgia, Tennessee and Alabama, he refers to the locality of Birmingham as follows:

"The distances which intervene between the coal and ore, and which are more or less conspicuous in many other iron making districts in the United States, are so modified in many parts of Alabama, Georgia, Tennessee and West Virginia as to place several localities in these provinces in a position of equality with the most favored of those which I have examined in Europe.

"As an example of this, I would ask you to imagine a section of country of which the western portion is the Warrior coal field. Between this and the Cahaba coal formation lies Jones' Valley, a few miles in width, containing the brown and red fossiliferous ores already described. We thus have two coal fields bounding for several miles, on the east and west, deposits of ore of immense magnitude, while on the eastern margin of the Cahaba coals are other extensive deposits of brown ore, and underneath, geologically speaking, an abundance of silurian limestone.

"Notwithstanding these unsurpassed facilities for the production of cheap iron, it can scarcely be pretended that more has been done than merely to recognize the existence of all this mineral wealth. No doubt there are some difficulties which must be removed before the Southern States assume that position to which their natural resources one day will undoubtedly raise them."

These statements, together with the practical demonstrations of the Eureka company, forever put at rest the question as to where the cheapest iron in the world can be made. It is made here, notwithstanding our difficulties and hitherto unfortunate surroundings. We stand now shoulder to shoulder with old England in the production of cheap iron. From the following statements of the cost of iron making at the iron producing centers of the North and West, it can easily be seen why the Eureka people are building a new furnace now, notwithstanding their market is on or beyond the Ohio river. I quote from the statement of Mr. Norton, president of the Norton Iron Works, copied from the Wheeling (W. Va.) Intelligencer:

"We had the pleasure yesterday of meeting with E. M. Norton, Esq., a former citizen of Wheeling and one of our early manufacturers in the iron business. As is generally

known he is now a resident of Ashland, Ky., where he is at the head of the Norton Iron Works, a concern that embraces one of the largest blast furnaces in the country and a nail mill that runs eighty machines. Mr. Norton has been in the iron business since his boyhood, or about fifty years, and has of course seen a great many of its ups and downs. He thinks, however, that the present depression is the most disheartening of any that he has ever known.

"In all former crises of the business we had the tariff to fall back on. The imposition of an additional duty, as long as we had not over produced ourselves at home, saved us from too much foreign competition and reanimated the drooping tendencies of the business. Now, however, the conditions have radically changed. Under the wonderful and unnatural stimulus given to the iron business during the war and since, especially by the great rise in prices in 1871–72, blast furnaces and rolling mills sprang up with rapidity, not only in this country, but in Europe. England, France, Belgium and the United States, all competed with each other in the multiplication of their facilities for the production of iron. The consequence was that when the panic of September, 1873, came upon us and prostrated the immense extension of our railroad system that was going on so rapidly (having reached 10,000 miles in a single year), we lost at one blow the consumption of half the iron that was made. The situation, therefore, was, that with nearly seven hundred furnaces on hand in this country and a like increase of them in England, we had not demand for half their product. Under such circumstances the tendency of iron for the last year and a half has been steadily downward in price, and this, too, without regard to the cost of production. The markets of the world has been glutted with this surplus iron, and the furnaces that produced it have been losing money and going out of blast. The consequence is, that although one-half of the furnaces of this country are now out of blast, yet the price of iron remains below the cost of production.

"Mr. Norton is of the opinion that the future of the business has been discounted for many years ahead, and that even should railroad building revive we still have for an indefinite time to come too many blast furnaces. The question of profit, therefore, *resolves itself into the matter of location.* There are localities in which iron can be produced at a living profit, while there are others where the furnaces must remain closed. Mr. Norton considers his own location at Ashland, one of the favored spots of the country for the production of metal. He gives us the figures for producing a ton of iron, as follows:

One ton of native ore	$ 3.25
One ton of Missouri ore	6 00
Transportation on same	2.75
Handling same at furnace	20
Seventy-five bushels of coal at 5 cents	3.75
Cost of labor per ton	2.50
Cost of limestone	75
Cost of mill cinder	50
Total cost per ton	$19.70

"In case the native ore is used exclusively, three tons of it will make a ton of iron. The cost of putting Ashland iron, when made, into the Cincinnati market, is one dollar per ton. The cost of making a ton of iron at Pittsburg, at present prices of ore, is estimated by Mr. Norton as follows:

"A ton and a half of Lake Superior ore costs at Cleveland, say	$10.50
Transportation of same	3.75
Eighty bushels of coke at 5 cents	4.00
Labor	2.00
Limestone	.75
Mill cinder	.50
Total cost	$21.50

Mr. Norton regards Jackson county, Ohio, on the line of the Marietta and Cincinnati Railroad, as one of the cheapest localities in the country for producing iron. He gives the cost there per ton, as follows:

Two and a half tons of native limestone ore, at $3 50 per ton	$ 8 75
Native coal, 75 bushels, at 5 cents	3 75
Labor	3 00
Limestone	50
Total cost	$16 00

The cost of transportation on iron from Jackson county to the Cincinnati market is about $2 50 per ton.

These three points Mr. Norton considers the most highly favored localities in the country for producing cheap iron. The only advantage that Pittsburg has over Wheeling is in the transportation of coke, which amounts to about $2 40 per ton. While, therefore, iron can be made at $21 50 per ton

at Pittsburg, it will cost, say, $23 90 at Wheeling. All these estimates, as will be seen, allow nothing for wear and tear, shortage, casualties, interest on investment, taxes, etc., which will add at least $2 per ton to the figures we have given.

Some people may think it strange, that localities like St. Louis and the Lake Superior region would not be enumerated among the points where cheap iron can be made, but at these places fuel is dear and has comparatively no home market. Connellsville coke costs from 14 to 18 cents per bushel at St. Louis, and charcoal is used in the Lake Superior country. As regards the Alabama and Tennessee ore fields, their product having a tendency to cold short, is not adapted to the general uses of iron manufacture, and, in addition, must be transported long distances by rail to the principal markets of the country.

As to such places as Chicago, Milwaukee, Indianapolis, and similar localities, Mr. Norton regards them as having no substantial advantages whereon to build an iron furnace, having to transport most of their fuel from Pittsburg.

In regard to the vicissitudes of the iron business in future, much depends on the financial policy of the government. The tariff, as has been observed, has done all for us that it can do. We certainly do not want to stimulate the business any further by that means, seeing that it is so largely overdone. The climax of the old whig argument has been reached, viz: that the legitimate result of protection was to give us an abundance of competition among ourselves, and consequent ultimate low prices. This state of things we now have. Our competition is already too great for the field it is confined to by reason of our currency, viz: our home markets. Our hope for the future, so far as regards our export trade, depends on our currency. We can never build up a traffic with Canada, South America, Mexico, and other countries, until we reach a sound currency; that is, such a currency as enables other countries to produce iron cheaper than we now produce it. It is, therefore, Mr. Norton's opinion, that until we approximate much nearer to a specie basis than at present, there can be no general revival of the iron business, and whatever prosperity may ensue in certain localities will *be due solely to natu-*

ral advantages. The parties having these advantages will, of course be careful to keep prices at a point that will forbid a general revival, and thus we will probably see a great deal of capital locked up *for a long time to come in unproductive enterprises.*

We see here the *cost* of making iron at the most favored spots of the West put down at $16, $19 70, and $21 50—with $2 50 freights to Cincinnati from the cheapest iron producing points in the West. By a close analysis of the materials used here at Oxmoor, and at the points named, it will be seen that they compare as follows:

COST OF MAKING IRON.

Ashland, Ky.		Pittsburg, Pa.	
1 ton native ore	$ 3 25	1½ tons of Lake Superior ore, at Cleaveland, O	$10 50
1 ton Missouri ore	6 00	Transportation on same	3 75
Transportation on same	2 75	80 bushels coke, at 5 cents	4 00
Handling same at furnace	20	Limestone	1 75
75 bushels of coal, at 5 cents	3 75	Mill cinder	50
Cost of limestone	75	Total cost materials	$19 50
Cost of mill cinder	50	Labor	2 00
Total cost of materials	$17 20	Total cost	$21 50
Labor	2 50		
Total cost	$19 70		
Jackson Co., O.		**Oxmoor, Ala.**	
2½ tons native limestone ore, at $3 50	$ 8 75	1¾ tons ore, at $1	$ 1 75
75 bushels coal, at 5 cents	3 75	Coke, 1 ton, 5 cwt., 3 qrs	3 86
Limestone	50	Limestone, 9 cwt., 3 qrs	40
Total cost materials	$13 00	Cost materials, *only*	$ 6 01
Labor	3 00	Add average labor of the three above places	2 50
Total cost	$16 00	Total cost	$ 8 51

A fervid thrill of delight passes through my frame as I contemplate these tables and see the future of my beloved Alabama. In humble adoration I pause here to give thanks to the Ruler of the Universe, in the name of and in behalf of my people, for the wonderful results presented here. For some purpose, perhaps in compensation for the great trials we have gone through in Alabama, He has reserved until now the disclosures here made.

The above figures and facts refer only to the iron business of the West. I will here publish a statement taken from the books of the Thomas Iron Company, of Hokendaqua and Catasanqua, Pennsylvania, using anthracite coal as a fuel. These are the largest, best known, and most successful furnaces in America. These extracts were furnished "The Engineering and Mining Journal," through John E. Church, E. M., and are correct and authentic through a period extending from December, 1855, to December, 1875.

Six Months, ending	Cost per Ton.			Amount used per Ton Pig.						Cost per Ton Pig.					Tons Pig made in six months.	Running Time.		Quality. Average No.
	Coal.	Ore.	Limestone.	Coal.		Ore.		Lime-stone.		Coal.	Ore.	Limestone.	Labor and Repairs.	Total Cost per Ton Pig.		Weeks.	Days.	
				Tons.	Lb.	Tons.	Lb.	Tons.	Lb.									
December, 1855	$ 3 10	$ 3 59	$ 0 63	2	968	2	1,252	1	1,357	$7 55	$9 50	$0 98	$2 54	$20 57	6,445	39	5	1.61
June, 1856	2 95	3 75	0 57	2	835	2	1,353	1	834	7 00	9 61	0 78	3 08	20 47	10,608	52	5	1.67
December, "	2 89	3 65	0 54	2	560	2	892	1	976	6 50	8 75	0 78	5 94	21 97	6,838	40	0	1.77
June, 1857	2 84	3 69	0 52	2	465	2	858	1	630	6 27	8 34	0 67	4 08	19 37	10,534	51	5	1.53
December, "	2 80	3 30	0 52	2	336	2	804	1	537	6 02	7 72	0 65	4 23	18 61	7,564	39	5	1.66
June, 1858	2 54	2 88	0 43	2	11	2	813	1	544	5 09	6 68	0 54	3 49	15 80	7,732	32	4	1.93
December, "	2 43	2 81	0 37	1	2,175	2	566	1	699	4 80	6 33	0 48	2 55	14 16	12,256	52	2	1.79
June, 1859	2 42	2 62	0 34	2	161	2	701	1	733	2 02	6 06	0 46	2 85	14 39	11,767	49	2	1.86
December, "	2 39	2 61	0 34	2	170	2	870	1	500	4 97	6 23	0 41	4 29	15 91	10,429	52	0	1.86
June, 1860	2 44	2 60	0 35	1	2,056	2	885	1	778	4 68	6 23	0 47	4 13	15 50	11,155	46	0	1.96
December, "	2 45	2 86	0 36	1	1,949	2	633	1	655	4 58	4 58	0 46	2 46	14 02	13,699	52	1	1.98
June, 1861	2 37	2 70	0 34	1	2,218	2	685	1	854	4 72	4 72	0 47	2 58	14 00	13,219	51	5	2.05
December, "	2 36	2 62	0 33	2	85	2	627	1	789	4 82	4 82	0 44	2 34	13 58	13,777	52	2	2.06
June, 1862	2 37	2 39	0 34	2	56	2	531	1	824	4 79	4 79	0 47	2 45	13 05	12,784	52	0	2.01
December, "	2 70	2 63	0 32	2	323	2	363	1	567	5 80	5 80	0 41	2 11	14 01	17,902	77	5	1.61
June, 1863	3 80	2 60	0 45	2	224	2	676	1	737	7 99	6 00	0 60	4 45	19 03	16,968	72	1	2.09
December, "	4 92	3 03	0 49	2	579	2	909	1	978	11 11	7 29	0 71	4 94	24 05	18,724	78	5	2.07
June, 1864	5 66	3 59	0 55	2	435	2	871	1	1,112	12 42	8 59	0 82	4 65	26 48	23,317	102	0	2.25
December, "	7 03	4 79	0 73	2	777	2	949	1	1,427	16 51	11 60	1 16	6 80	36 07	21,162	95	4	1.99
June, 1865	6 13	4 68	0 80	2	907	2	1,166	1	1,416	14 75	11 78	1 30	6 64	34 48	14,320	68	0	2 25
December, "	5 69	4 72	0 69	2	443	2	75	1	1,128	12 06	10 87	1 04	5 73	29 70	17,180	72	0	1.89
June, 1866	4 85	4 34	0 76	2	262	2	758	1	1,078	10 27	10 11	1 13	5 67	27 18	23,496	101	1	2.08
December, "	4 44	4 94	0 74	2	605	2	523	1	1,116	10 07	11 02	1 11	5 16	27 36	23,556	96	5	1.69
June, 1867	4 00	4 90	0 72	2	903	2	687	1	1,065	9 61	11 30	1 07	5 98	27 97	22,153	96	4	1 94
December, "	3 54	4 56	0 75	2	890	2	642	1	1,207	8 57	10 43	1 16	4 99	25 14	24,987	104	0	1.74

June, 1868	3	41	4	60	0	76	2	466	2	875	1	1,140	7	53	11	00	1	14	6	54	26	21	26,214	100	6	2.21
December, "	4	14	4	53	0	78	2	436	2	787	1	1,011	9	00	10	64	1	17	6	52	27	33	27,448	124	5	2.15
June, 1869	4	16	4	66	0	79	2	132	2	554	1	1,366	8	57	10	47	1	27	5	24	25	56	28,808	130	0	2.04
December, "	4	95	4	98	0	82	2	80	2	375	1	1,345	10	07	10	79	1	30	6	11	28	27	33,352	155	0	1.90
June, 1870	3	98	4	89	0	81	1	2,001	2	489	1	1,059	7	53	10	85	1	20	5	05	24	62	33.357	156	0	2.15
December, "	3	78	4	72	0	81	2	32	2	579	1	1,076	7	61	10	66	1	20	4	93	24	41	33,507	156	0	2.19
June, 1871	4	23	4	86	0	79	2	61	2	814	1	1,161	8	59	11	48	1	20	8	06	29	33	16,313	86	3	2.69
December, "	3	77	4	98	0	73	1	2,032	2	493	1	916	7	18	11	06	1	03	3	84	23	12	36,301	156	0	2.23
June, 1872	3	69	5	24	0	74	1	1,921	2	252	1	944	6	84	11	59	1	05	4	60	24	08	36,311	156	0	2.27
December, "	3	75	6	22	0	75	2	116	2	749	1	1,361	7	69	14	51	1	20	5	79	29	20	32,167	156	0	2.28
June, 1873	3	85	5	95	0	75	1	2,039	2	471	1	1,410	7	36	13	15	1	20	7	40	29	11	32,676	156	0	2.30
December, "	3	85	6	02	0	73	2	60	2	796	1	1,412	7	82	14	21	1	20	6	50	29	72	26,420	131	0	2.30
June, 1874	3	86	5	88	0	66	1	2,138	2	799	1	1,140	7	39	13	64	1	00	5	44	27	49	19,521	109	3	1.84
December, "	3	86	5	75	0	61	1	1,856	2	183	1	771	7	06	11	98	0	83	5	27	25	14	21.592	100	0	1.95
June, 1875	4	28	5	30	0	57	1	1,904	2	178	1	737	8	12	11	03	0	76	3	82	23	74	21,326	104	0	1.92
December, "	3	41	5	19	0	55	1	1,678	1	2,124	1	352	5	99	10	12	0	64	3	56	20	32	21,972	92	2	1.80
Total																							816,985	3628	3	
Average per six months	$ 3	61	$ 4	15	$ 0	60	2	261	2	710	1	969	$7	74	$8	45	$0	88	$4	72	$22	94	20,000	88	3	1.96

The Geographical distribution of ore and coal in this country has produced a number of well-marked classes of iron works. We have those which are placed close to the ore mines, but obtain anthracite coal by a long carriage, usually by land and water combined; others that have both ore and anthracite close to the furnace; others that are placed at great distances (often 200 or 300 miles) from both of these main supplies. The makers of soft coal iron are in precisely the same positions, and railroad transportation of fuel has its greatest extension in supplying the large furnaces on the Mississippi, which obtain ore from Iron Mountain, 100 and more miles distant, and coke from Connellsville, 500 miles and more away. The conditions are further complicated by the fact that sometimes the ore, sometimes both ore and fuel, and sometimes neither one, is mined on land belonging to the furnace owners. The Thomas Iron Works stand in the second of the classes first spoken of. 1. It mines its own ore. 2. Works low grade ores (average of five years, 41.6 per cent.) 3. Has short transportation (average, say, 30 to 35 miles) for fuel and ores. 4. Smelts with anthracite coal. 5. Uses large furnaces "with all the modern improvements," a very hot blast (900 deg. F.), and high pressure. 6. Has produced on a long average, 33 per cent. of No. 1 X, 28 per cent. No. 2 X, 31 per cent. No. 2, and 8 per cent. No. 3; or, if we count these as Nos. 1, 2, 3, and 4, the general average would be 2.07. (This average is for the period ending December, 1873.)

If we will refer back to the table, as furnished by Mr. Thomas, of Oxmoor, Alabama, it will be seen that the materials—coke, ore and limestone—for the production of pig iron cost here $6.01; whilst the average, as given in the above table, for the last twenty years is $17.07, or a difference in our favor of $11.06; or an amount nearly equalling one-half the total cost of production in eastern Pennsylvania, which is, as appears from the table, $22.94; or, adding here the same amount for labor and repairs as is given in the above table, or $4.72, as an average, we have a total cost here of *ten dollars and seventy-three cents, against twenty-two dollars and ninety-four cents in Eastern Pennsylvania.*

"*Quosque, tandem abutere, Catalina, patientia nostra?*" How long will it take the iron world to learn wisdom? These tables, as presented above by the elder Thomas of Pennsylvania, are as absolute and conclusive as human evidence can be. The facts given by his kinsman, the younger Thomas of Alabama, are equally convincing and true. Yet the world heeds them not.

These figures and facts are not mine; they are the result of years of experience. There is margin enough here to place pig iron from Birmingham, at ordinary rates of freight, *in every furnace yard from Pittsburg to St. Louis.* There is also margin enough to place it free on board at New Orleans, Mobile, or Pensacola, and ship it to the cities of Philadelphia and New York, to the ports on the Mediterranean, down the Spanish Main, and all over the Indian Ocean, on equal and even terms with Great Britain, now our only rival in iron making on earth. The materials for duplicating the above results are not pent up or contracted here in Alabama, but lie thickly every where, in every direction within a radius of fifty miles around the city of Birmingham. I refer the reader to the excellent letter furnished me by Mr. Thomas, and printed above, for information on this subject of iron making here, every word of which I endorse as true.

In the matter of shaped or rolled or cast iron, we have advantages that will, at least, warrant the production here of every thing needed in this line in Alabama and the adjoining States. Mr. Sharp, of the Newcastle mines, for Birmingham places coal at $1.75. He can and will do it for one dollar

and fifty cents, and get rich. These large coal veins run along in sight of the city of Birmingham and can be easily reached by a short railroad, over level ground, from the city. (The free burning coals may cost $2 per ton run of the mines shipped from any where along the South & North or Alabama & Chattanooga Railroads.) On the coal question we may not equal, with the present developments, the city of Pittsburg, and perhaps not Wheeling, but I know of no other manufacturing centers that can beat us, even now, in the price and *quality* of our coals for manufacturing purposes. We have already shown that in iron product we are ahead of any other section of the United States. In coal we are at least equal with the exceptions above named. In climate and health we are at least equal to any section of the United States. Why then can we not produce our shape iron at home, at least as much of it as we need. *We can and will.* (The best and cheapest stationary steam engine now in Alabama, was made recently by Mr. Williamson, of the Birmingham foundry. I am capable of judging of matters of this kind.) The rails for the South & North Alabama Railroad are rerolled at New Albany, Indiana. The pig iron for the purpose of making up the pile or proportion of new iron required in rerolling, is taken from Birmingham to New Albany, Indiana. The President and Secretary of the New Albany Rolling Mill was here a year ago, and I heard the President tell the Governor of Alabama that the difference in coal alone at Birmingham was equal to *five dollars per ton* of rerolled rails. Now this five dollars per ton, added to the freight on pig iron and old rails both ways, to say nothing of our cheap pig iron produced here, does seem like there is a margin in making rails here at Birmingham, our coal and iron center. The rails of the interior and south Alabama are taken to Atlanta for rerolling, and the coal and pig iron are carried from Alabama for this purpose. The Atlanta Rolling Mill used ten cars of coal per day. The freight on this coal from the South & North road, was $30 per car, or $300 per day, *or $90,000 per annum*, or enough money to build a mill *now in one year*. It may be said Atlanta had coal nearer than ours. But I know the fact that *Alabama coal, paying the $30 freight*, was the cheapest and best furnished the rolling mill at At-

lanta. This was on account of our better mining facilities here. The Atlanta Rolling Mill Company failed. Any business paying annually *an absolute bonus* equal to its whole value ought to and will fail any where on earth. The system of railroads south and southwest, and contiguous to Birmingham, as the nearest iron and coal center, require even now, in the present impoverished condition of our section, 10,000 tons of rails annually, besides hundreds and thousands of tons of other irons. (Still we take our coal and iron on our backs and trudge from 300 to 500 miles to get it slicked over.) We have in Alabama the last, best and farthest extended outpost of the greatest mineral region in the world, into a section of country paying gold for every thing they are using; and consuming, necessarily, in their various industries and operations large quantities of wrought iron, there is only a single rolling mill in Alabama, founded and standing on the energies of one old man, Richard Fell, already passed or near his three-score and ten years, who, with no capital except his stout English heart, began with his two sons and son-in-law, Hon. R. W. Cobb, only five years ago to rebuild at Helena the rolling mill destroyed by the war, and is now successfully fighting old England in her almost monopoly of iron cotton-ties. James Noble, another countryman of Mr. Fells, with an energy almost superhuman, has filled up Rome, Ga., with industries of all kinds, since the war. But he tells me that the freights paid on coal from the South & North road, the cheapest and best coal he could get, was 25 per cent. net profit on his industries, *or just so much dead loss on his business.* We come now to Chattanooga, the only place in America that pretends to rival this section of Alabama in coal and iron production. I will approach this subject with caution and candor, and try to do justice to our only real rival. Chattanooga appears well located on the map, or on any map, for becoming a great iron center, and I have no doubt her good people believe that they are standing on the bottom rock in this business, in the South and in the United States. But such a man as Michael Tuomey, our old and honored State geologist, if alive now, would show them in two pages of a well-written book, that beneath them and between them and the real bottom rock, was a live strata of undeniable facts, here in Alabama, that was slowly

but surely undermining their hopes, and in time they and their pretensions would tumble in and be ruined, as are Atlanta, Rome, and all other places importing coal and iron, as they now are from this section of Alabama, as a basis of their industries. I know that the people of Chattanooga will take issue with me here, but if the reader will only look upon the geological map accompanying this work, he will see that the coal fields around Chattanooga have had a great struggle to save themselves from being washed away and ruined by the convulsions of nature, when the channel in which now runs the Tennessee river was formed. Only the coal lying on the tops of the great convulsed mountains was saved, and this so distorted and shaken up that a miner never knows to-day that he will have coal vein to-morrow. Sometimes the coals are hid away and squatted in heaps behind these great mountains, as at the Roane Iron Works. Again, they are lost, displaced and entirely gone, as at the Rising Fawn Furnace. This splendid furnace, working ores identical with those of the Red Mountain here, went into blast about twelve months ago, and after expending hundreds of thousands of dollars *hunting* for their lost coal and occasionally finding it, but always full of dirt and impurities, is now cold and standing idle, whilst our people at Oxmoor are running prosperously, and even actually engaged in the construction of a new and larger furnace. It will cost money to move a large and well appointed furnace like that at Rising Fawn to the vicinity of Birmingham, but the shadows are already seen and the substance will be here soon. The furnaces at Chattanooga are supplied daily with red ore from Gadsden, Ala., brown ore from Woodstock, thirty miles south of Birmingham. I will leave this subject right here for the present. The transportation facilities of Chattanooga will be unsurpassed soon. The periodical inundations from the river, however, will always be a drawback to their permanent prosperity. Years ago I surveyed a railroad line to Chattanooga. Getting the high-water mark at the old *Indian town of Rossville, as it was called*, several miles below the present site of Chattanooga, and attempting to keep above the overflow of the river, I passed by on the mountain side the present site of Chattanooga altogether. I was surprised then and thought the old

Indian mark wrong, but the several overflows of the whole city since, convince me that the Indians were right.

There is nothing wanting here in Central Alabama, but capital and labor, and even our negro labor, from some cause, does better in the coal and iron business than in farming. This business being carried on mainly by the piece, by the job, or by the days work, and only using the labor of grown men is the principal reason. The transportation facilities now are confined to the two great railroad lines, the one leading from Louisville to Pensacola and Mobile, and the other soon to be from Cincinnati to New Orleans and the Southwest. Tuscaloosa, the head of navigation on the Warrior river, is fifty-six miles by rail, and Montgomery and Selma on the Alabama river, ninety-six miles from Birmingham, and railroads are in course of construction from Mobile and Savannah. The former, from its low grades, if ever completed, will become the Reading railroad of the Gulf of Mexico. If water transportation is ever needed the Warrior and Cahaba rivers, cutting as they do so deeply and smoothly in the strata, can be easily improved. It is not generally known, but it is a fact, that the water in the Warrior river opposite Blount Springs is only 270 feet above tide at Mobile, or 100 *feet above water level at Tuscaloosa.* Such a basis for slack water navigation is unknown in any mineral region in the world. Alabama is making now her first marks in mineral development, and can compare with nothing in the amount and value of her actual productions. Pennsylvania is now the leading State in the production of mineral values, and will continue to be so in coal product for generations to come. But, in iron, Alabama will be up with and even with Pennsylvania in less than twenty years. In 1860 the total property of Pennsylvania was $1,416,501,818, and of Alabama $792,000,000. In 1870 Pennsylvania had risen to $3,808,340,-112, and Alabama had fallen to $201,855,841. In 1860 our property was one-half that of Pennsylvania; in 1870 only one-nineteenth. We have been crawling backwards and Pennsylvania forwards, and we are now, in comparative wealth, a long way apart. But twenty years from to-day, in the production of the raw materials, coal and pig iron, and in

the value of our crop products, we will be her equal again. We can not and will not build here the great manufactures of Pennsylvania in twenty years. Time alone will do this. But it will be done, and the child is now born who will live to see the industries of Alabama, of all kinds, equal to those of Pennsylvania. The climate and health of the mineral region of Alabama is unexceptionable, and all that could be desired. Blount Springs, in this region, is a famous watering place, visited by people in search of health everywhere, from the Ohio to the Gulf of Mexico. It is another of the wonders of this wonderful State. These Springs are so well known and advertised that it is a waste of paper to write more of them here. The yellow pine timber covering the country, from Jemison to Montgomery, is a complement to the varied industries growing up along the line of this great Railroad. It is being shipped now in large quantities every day to Ohio, Indiana, and Illinois. In the development of and building up this lumber business, as of every other interest, the management of the Louisville & Nashville & Great Southern Rail Road Company have exhibited a business acumen and foresight that entitle them to the thanks of the people of this section of Alabama. I have laid down the predicate in these pages for an examination of the varied industries, or rather basis of industries of Alabama, and I hope some person, better qualified than I am, will take up this subject where I leave it off, and continue until Alabama is herself, again. In addition to the agriculture, we have now a basis for mining and manufacturing interests never known or understood before the war. If our fields were all barren, (which they are not,) we have in our other industries the basis of great wealth waiting, as is our agriculture, only for capital and effective labor.

This whole book has been written without any reference to style, orthography, or the construction of the sentences. Not a page or a line has been revised, or rewritten, and I trust the public will see that I am driving at the substance, rather than the form of my subject.

CONCLUSION.

This synopsis is already much longer than was intended at first. I have condensed it, however, as much as the magnitude and importance of the subject will allow. I have demonstrated the superior merit of the soils of Alabama, when properly cultivated and tilled, in the production of agricultural values, by comparisons with the soils of other States of the Union, alike cultivated and tilled. I have shown, also, the meagreness of the crop productions of these identical soils, at this time amounting, in 1870, in the counties considered in this paper, to only 43 per cent. of what they were before the war. I have shown, also, that the shrinkage in the effective value of negro labor, amounting now to from 32.8 to 36.7 per cent. only, of what it was before the war, is the sole cause of this loss in production, and that from the well-known history of the emancipated slave the world over, and from the beginning of time, we can expect no improvement hereafter in the effective value of their labor. Such a paralysis in production as has been found in Alabama for ten years succeeding the war in the portions of the State cultivated only by negroes, if occuring at any time before the war, would have driven the last slave, and the last slave-owner, from these sections, and the soil itself would have been called *accursed*. The question then resolves itself into this, we must bring labor here that will be effective, or see our State given over to unthrift, idleness, and weeds, as has been the case in every other country in the world, where slave labor once formed the basis of agricultural wealth, and was afterwards set free. Our history, our traditions, our interest, all alike, forbid any idea of the latter suggestion. The measures then to be adopted, to carry out the former, rises prominently before us. It would be of little use to demonstrate to the new millions of white people seeking homes in our country every year, that the soil of Alabama was the most fertile in the production of agricultural values of any of the States of the Union, and leave the question of the agricultural capabilities of the new West untouched, and the whole line of frontier west of longitude 98° and 100° still supposed to be available for settlement and agriculture. A large portion of

this book has been devoted to the discussion of this open question. I trust I have demonstrated fully and conclusively, though with feelings of regret, as a citizen of the United States, that agricultural civilization, progressing always in the history of this country westward, has reached now its extreme western limit, or will do so in three or four years. The conclusion is evident, if all my premises are true, that the question of immigration to the rich lands of Alabama and other States of the South is very near at hand. Alabama has appeared before the world since the war only in the tattered garb of disappointment, distress and despair. The new millions coming upon the stage of action now, have seen her only through the jaundiced eyes of misrepresentation, calumny and fraud. To place her before the world in her true light, is one of the objects and duties of this paper. Her mineral interests have been referred to, though in a manner entirely unscientific. The other industries along the line of the South and North Alabama Railroad have also been referred to and commented on. If the work does no other good, I hope it will convince my friends in Alabama that they now inhabit the best country in the world, and that they will give over all idea of deserting Alabama for that unknown and never found country where money comes without labor, and life is to be enjoyed without pain.

JOHN T. MILNER.

ERRATUM.—On page 157, 13th line from top, strike out the words, "the Commissioner concludes, as,"—the copyist having inadvertently omitted the comments of the Commissioner.

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